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The Oil Man's Calendar

JUNE 8–11	American Society of Mechanical Engineers, Semi-Annual Meeting, Cleveland.
22–26	American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City.
SEPT. 7–11	American Chemical Society, Buffalo, New York.
OCT. 5– 9	National Safety Congress and Exposition, Stevens Hotel, Chicago.
12–14	American Society of Mechanical Engineers, Fall Meeting, Rochester, New York.
25–29	National Lubricating Grease Institute, New Orleans.
NOV. 9–13	American Petroleum Institute, Stevens Hotel, Chicago.
16–18	American Institute of Chemical Engineers, Netherlands Plaza, Hotel, Cincinnati.
17–21	National Chemical Exposition and Industrial Conference, American Chemical Society, Stevens Hotel, Chicago.

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The Changing Panorama

Californians Plan to Exchange Equipment

THE first cooperative voluntary effort to obtain exchange and redistribution of oil field materials in the hands of operators is being undertaken in California by the Pacific Division of the Petroleum Equipment Suppliers Association. Currently the program is limited to tubular goods, but if it proves successful probably will be extended to include all types of oilfield supplies and no doubt would be adopted in other regions.

All California companies and operators have been requested to report to the association tubular goods they are willing to sell another operator who has an approved immediate need. Operators needing such goods will be placed in touch with parties having the desired type of casing, drill pipe or tubing and no immediate need for it. The actual negotiation for purchase and sale is to be carried out by the two interested persons.

In tackling the redistribution of tubular goods first, the association probably is attempting to crack the hardest nut first. Some companies have considerable quantities of casing and drill pipe on hand, but it is a prized possession today and one not likely to be sold if there is a remote possibility it will be needed within a year. However, the effort is worth the chance of failure for should tubular exchange prove successful it would do more to maintain normal field operations than other items.

New Illinois Strike Of Real Importance

COMPLETION of The Texas Company's semi-wildcat in the Mayberry area of Wayne County as one of the largest Illinois wells of the year is probably 1942's most important strike although perhaps not the largest. While little hope is held that the discovery will be able to prevent some additional decline of Illinois production, it should assist in retarding the rate of decrease which has enlarged the difficulties of supplying the Atlantic Seaboard. Any material curtailment of Illinois' drop in production would be an accomplishment of significance, due to the much shorter distance from the state to the East Coast lessened difficulties and cost of moving oil would result. Already The Texas Company is starting several tests.

Trucking Regulations Hit Oil Field Hauling

UNLESS amendments can be procured that designate hauling of oil-well supplies an exception, regulations governing use of motor trucks are going to greatly hamper field operations beginning June 1. Especially handicapped will be concerns who have depended largely upon their private fleets for considerable hauling volume.

The Office of Defense Transportation orders applying to private carriers require that no truck (which includes any type of vehicle used in hauling equipment) shall make a trip of more than 15 miles unless it leaves the point of origin with a full load and returns with not less than a 75 percent load, or vice versa. This cannot be done in delivery of equipment from a supply company store or oil company warehouse to a well, or in moving a rig from one drilling site to another. Therefore, it is important that ODT give prompt consideration to the questions raised by several groups within the industry and issue official interpretations.

Intimations from ODT are that the moving of a rig from one site to another probably will be permitted although the truck will have to go one way completely empty—provided a contract carrier is not available who could make the trip in fewer miles. Thus, the rig apparently could be moved although perhaps not by the most economical way. However, official action on the numerous phases are highly desirable and awaited with interest by the industry.

Gasoline tank trucks, pole trailers and pipe - dolly - equipped vehicles are specifically exempt from the order, and therefore the marketing branch and the delivery of tubular goods is not a problem.

Will Tank Car Costs Be Absorbed Too?

OIL companies may anticipate relief from the terrific East Coast tranportation costs they have been paying during the past few months. With plans worked out whereby the government will stand good for all shipping costs exceeding the tanker basic rate in effect January 20, it is to be expected that a similar system will be placed in effect for oil moved by railroad also. It has been estimated that due to high shipping costs oil companies have been selling oil products on the East Coast at a rate of $350,000,000 below annual costs. The tanker shipping cost agreement takes care of $200,000,000 of this amount.

Government Officials And Gas Rationing

HOW will Eastern gasoline rationing affect the government officials who figure more or less prominently today in the oil industry's affairs? The Wall Street Journal's Washington bureau turned the spotlight on some of these as well as many other administrative officials, and found that very few would walk to save gasoline, thanks to B and X cards, which will allow adequate or unlimited supplies, respectively.

Leon Henderson was issued an A card for each of the two cars he owned, but it was not learned if or how he would get along with the limited quantities of gasoline they would afford. He has been driving a 1935 model Plymouth to work from his home 2.9 miles away, but his summer cottage is over 30 miles from Washington.

Harold L. Ickes uses a government car for traveling into Washington from his home at Olney, Maryland, and Mrs. Ickes obtained an X card for the station wagon used at the farm.

Ralph K. Davies uses a government car, as he left his own car behind in San Francisco.

Chairman Donald Nelson of the War Production Board almost ex-

clusively uses a government car for which an X card was issued, and an A card was issued for his private car.

Admiral Emory S. Land, chairman of the Maritime Commission, lives only a few miles from his office but uses his own car 20 to 30 miles a day, particularly when government cars are not readily available; consequently, he received an X card.

Joseph B. Eastman, chief of the Office of Defense Transportation, never owned a car and generally walks to work, although lately he has been riding to his office with another person.

A Few Hours Delay Would Have Helped

DELAY of a few hours in the sinking of a tanker off the California coast last December 23 would have saved Union Oil Company of California a third of a million dollars. If the company's tankship "Montebello" had been unmolested several hours longer, it would have been covered by war-risk insurance. Actually, the boat went down the day after insurance had been applied for but a few hours before insurance became effective. The story is told in the quarterly report of the Union Oil Company as follows:

"On December 23, 15 days after war was declared, our tankship 'Montebello' was sunk off the coast of California by enemy submarines. The 'Montebello,' constructed in 1921, was not covered by war-risk insurance, and the company suffered a loss of $337,605 which consisted of the book value of the vessel, the cost of the cargo, supplies, and personal effects of the crew. Fortunately, the officers and all members of the crew got to shore safely.

"The first tanker lost off the California coast came as a distinct shock to all of us. The 'Emidio,' a General Petroleum (Socony-Vacuum) boat, was sunk just 20 miles south of Eureka late in the afternoon of December 20. When confirmation of the sinking reached us the next day, plans were immediately made to insure our coastwise vessels against this hitherto unknown threat. War-risk insurance was applied for on December 22, but due to differences in time between the Atlantic and Pacific, this insurance did not go into effect until just a few hours after the 'Montebello' was sunk."

Butane Important War Commodity

NATURAL gasoline manufacturers realize the important part which butanes are playing in the production of materials highly essential to winning the war, but few others recognize their importance.

Through thermal and catalytic conversion processes, isobutane is being made into iso-octane, an invaluable blending agent for obtaining aviation gasoline. Normal butane is being converted into butadiene through dehydrogenation. Approximately three parts butadiene and one part styrene make up the principal constituents going into synthetic rubber.

By far the greater portion of the available butanes is obtained in gas streams coming from oil-gas separators in new fields, and from casinghead in old pumping areas.

A Few Gas Rationing Reverberations

GASOLINE Rationing's Reverberations: From Florida to Maine, independent service station operators fear that they will be put out of business. Observations at bridges and highway intersections have shown pronounced curtailment of traffic. Eastern used car dealers formerly could readily sell cars with good tires, but now even those cars are hard to sell. An era of gasoline bootlegging is threatened, in the face of penalties prescribed. Parking-lot operators seriously consider construction of hitching posts and bicycle racks. Chauffeurs look around for new jobs. Discontinuance of sales to motorists on credit has been pointed out to OPC as a means for cutting oil company costs, as it has been estimated that the cards run up gasoline costs a cent a gallon, because of extra bookkeeping and failures to collect. A third of the nation's motor vehicles and service stations and two thirds of its domestic oil burners are affected by rationing, the East having about 11,000,000 motor vehicles, 140,000 retail gasoline outlets, and 1,500,000 oil burners in homes. Because farm vehicles are exempt from rationing, Eastern city-dwelling farm owners face suspicious observation. Although bristling Senators refused to waive rationing privileges accorded by OPA, all the nation's lawmakers will have to be circumspect or risk their political necks—elections are not far away.

Stockholders Told of Big-Inch Line Cost

FIGURES on costs of building and operating the proposed 24-inch pipe line from East Texas to New York were given by W. F. Humphrey, president of Tide Water Associated Oil Company, in a discussion at the company's annual stockholders' meeting.

The line would cost $95,000,000, he said. The cost of transporting oil through it would be about 38 cents a barrel, as compared with a normal tanker shipping cost of 14 cents.

The cost of shipping by tank car, now the principally used method, is about 2½ cents a gallon ($1.05 a barrel) greater than the normal cost of shipping by tanker, he said.

Because of the present excessive transportation costs, Humphrey stated, operations are not and may not be expected to be profitable for most companies operating exclusively in the Atlantic Coast area. His company, he added, fortunately had operations in the Mid-Continent and on the Pacific Coast which possibly might enable it to make up any deficit in Atlantic Coast operations.

Some time ago a good friend of ours who is an independent producer, made the statement in an informal gathering that one of the major refining companies had a process by which a barrel of 16-gravity fuel oil could be made from a barrel of 36-gravity crude oil. Never having heard of such a process and being dubious on the matter, THE OIL WEEKLY *checked the refining department of the company mentioned and finds that such a project would be impossible from a physical and chemical standpoint.*

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

By B. F. LINZ
Washington Correspondent

»

Rationing Becomes Major Political Issue

»

Davies Predicts "Economic Casualties"

»

Oil Problems Checked to the President

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THE gasoline - rubber situation last week became definitely a major political issue on which may hinge the course of Congressional elections only five months away, and indications are that the Administration approach to the problem may be changed radically as a result.

With nation-wide rationing subjected to bitter attack in almost daily debates in the House and Senate, it was seen probable that plans to institute it July 1 would be deferred, unless in the meantime it is figured clearly that the political repercussions would not be dangerous. The opposition was particularly vocal from the producing states, where thousands of operators saw insolvency in any spread of rationing.

Possibilities that WPB was seeking a graceful way of reversing its position on the "big-inch" pipe line also were seen in the disclosure that a committee of engineers would be appointed to study the application filed last week by Coordinator Ickes.

Both national-rationing and pipeline policies are expected to be laid out in the White House, where President Roosevelt has been appraised of the increasing public demand that the Administration "do something" about the situation.

Linked inextricably to rationing is the question of rubber, another sore point with the public, which appears something less than satisfied with explanations that gasoline restrictions will conserve rubber. With no assurance that with even the maximum of conservation, the war would be ended before today's tires are worn out, the major question is what good it will do to make those tires last a few months longer if no new ones will be available when finally they do blow out for the last time.

But the Truman Committee investigating the defense program could find no hope that civilians would get rubber within the next three years. In a 57-page report the committee rehashed the Standard-I. G. agreement in 1929, criticized the Army and Navy for not attempting to conserve rubber and slapped at Secretary of Commerce —RFC Chairman and General "Poo-Bah" for dilatory handling of the rubber program, but held that butadiene was the bottleneck of synthetic production.

Interests which for years fought vainly for development of the intracoastal waterways, aided by an unexpected ally in the East Coast shortage, moved a step nearer to achievement of their plans when the House Rivers and Harbors Committee approved the Mansfield bill for a $144,000,000 development including a temporary pipe line across Florida, and the Rules Committee gave the measure right of way on the House floor.

The financial situation of the industry was brought to the fore during the week, when Deputy Coordinator Davies, testifying before the Cole oil subcommittee, declared that relief must be provided for the weaker operators if the industry is to survive in competitive structure. The subject of finance is expected to be a major subject of discussion at the June meeting of the Industry War Council this week.

COLE HEARING: The oil industry will suffer many "economic casualties" unless steps are taken without delay to provide financial relief for the weaker operators, the House Interstate and Foreign Commerce Committee was told May 26 by OPC Deputy Coordinator Ralph K. Davies.

Supported by Deputy Coordinator Robert Allen, who said some cases already had occurred, Davies asserted that if present conditions continue for any length of time "it must inevitably lead to the courthouse steps."

It was the first time that the financial problems of the industry had been brought squarely before the House oil groups, although they had been touched upon fleetingly at one or two previous sessions, but Davies brought the issue squarely to the fore.

The deputy coordinator disclosed that even as he was testifying the final touches were being put to the new application for steel for the Texas-New York pipe line, which was submitted to the War Production Board a few hours later.

"Figures and forecasts all show that unless we can again open an improved tanker performance, which is distinctly improbable, we must have this pipe line in addition to the other developments of inland waterway transportation, rail transportation, etc," he said.

His statement drew from Representative Kelly of Illinois the comment that he had talked with Nelson about the allocation of materials for pipe line construction and that Nelson "said he would not give a pound of steel for that purpose." The same thing, he said, would react against the use of barges, for which motive power must be built.

The effects of ocean transportation difficulties have become increasingly disturbing, Davies said, not only bringing rationing in the East but increasing the hardships of producers and refiners on the Gulf, while the Middle West is

beginning to feel the strain of heavy and continuing withdrawal of tank cars.

But, he added, there have been some entries on the asset side of the ledger—tank car deliveries to the East Coast have topped 684,000 barrels a day and it is confidently expected they may reach 800,000 although there is some doubt of the possibility of sustaining them at that level.

Oregon and Washington have improved their situation, and card rationing, scheduled for June 1, will be unnecessary.

OPC has been successful in persuading industrial users of heavy fuel oil to convert to other fuels, with a saving thus far of 13,500,000 barrels a year and chances of another 15,000,000 barrels as others come into camp.

Pipe-line projects now being put under way will deliver 200,000 barrels a day and, recognizing the potentialities of the inland waterways, OPC is seeking to increase that movement, to build as many steel barges as the material supply will permit, and a large number of wooden barges to be used partly in substitution for steel carriers now moving dry cargoes and for the transport of heavier oils.

Half of the 24-inch long-distance line could be completed by December, offering a large measure of relief to the East at that time, Davies said in outlining the plans of his agency.

"The question again is whether or not the steel can be allotted for this use as against other urgent needs," he declared. "The decision rests with WPB."

However, he warned, even if the transportation problems are solved, there is no assurance the public will have unrestricted use of their cars restored, because of the shortage of rubber, and because of that shortage gasoline rationing may be extended to the nation as a whole.

Aviation Gasoline Gains

Carefully withholding any detailed information which might be of military value, Davies told the committee that the capacity for 100 octane-gasoline has increased "very considerably," and present production for existing plants is about 50 percent more than the maximum thought possible a few months ago—largely through technical improvements — and a program of plant construction and expansion is going forward.

In the past four months, aviation gasoline under contract to the government has trebled, and OPC has practically completed the expansion program authorized by WPB, he disclosed.

Severe Disruptions

Nineteen major companies and 31 independents are already participating in the program, and in each case the size of the installation is the maximum for the particular refinery.

Davies, however, stressed that all these efforts have resulted in severe disruptions with production, refining and marketing operations "geared to normal volume of demand completely disorganized," particularly as the change in volume has not brought the normal fluctuation in prices of product.

"With price ceilings fixed by law, economic problems of the most complex character have been created," he said.

"There has been no destruction of product in Chicago or anywhere else, but there has been a destruction of values."

The deputy coordinator explained that in order to obtain greater volumes of fuel oil and lesser volumes of gasoline, the government has found it necessary to direct that changes in normal refining practices be made. This, in effect, has meant for the refiner that he converts gasoline into fuel oil—the operating procedure has not been quite so similar, he said, but in effect is precisely that.

"In the course of the war, as conditions demand, there will doubtless be many adjustments of this kind called for, and the economic effect on the petroleum industry is bound to be severe," he commented.

"If the function of price be eliminated, it would seem something else must be found to take its place," he insisted.

"A tendency toward monopoly must inevitably develop if dislocations within the industry are not recognized and provided for in some manner. The effect is upon both large and small units and while there are limits beyond which even the largest and most powerful units cannot continue in solvency, those limits are beyond those of the smaller and weaker members."

There are bound to be consolidations if the situation continues, he said, making for monopoly.

Davies said he had little optimism over future supply. The needs of the armed forces will be met "fully and promptly," he declared; the war industries will be kept supplied with the oil needed for their operations, but "as to the extent to which we shall be able to provide for civilian requirements, that is a matter concerning which I should not care to attempt a prophecy."

Responding to questions by Chairman Lea regarding the situation of the producers, Davies cited the case of Texas where the recommended allowable was cut from 1,560,000 barrels for April to 960,000 barrels for May. That meant, he said, that producers could operate about six days in May and many of them cannot meet their operating costs, payrolls and debts on that basis.

That, he said, is a situation which must inevitably lead to the courthouse steps.

Answering a question by Representative Holmes of Massachusetts about the damage to wells from being shut down, Allen explained that while this depends on the individual well, many of them can be shut down without damage and some, in fact, recuperate from a rest. No stripper wells have been closed by the state regulatory authorities, he said, but many have been shut down because they no longer are economic to operate.

Allen pointed out that while the producers suffer severely from situations such as now exist, the refiners also are victims of "tragic conditions."

He disclosed that the producers who are so keenly affected are preparing the exhibits and facts that are required by the Office of Price Administration to support consideration of requests for price increases. Meetings were to be held in California and Texas during the week for that purpose.

"It's not fair for the government to expect private industry to furnish essential needs below cost," Lea declared. "Private industry should at least have its costs covered in return for the critical materials it furnishes. These concerns should pay their burden financially by taxes and not in costs."

"It may well be that before we lick the transportation problem the effect of these disruptions may

have annihilated a considerable number of units in the industry unless something be done to relieve their distress," Davies agreed. "The oil industry must be kept operating in good efficient style for the war."

☆

RATIONING: Controversy over nation-wide gasoline rationing continued unabated during the week, with members of Congress from the producing states particularly vocal over the possibility that car owners in producing fields would be required to observe the same restrictions as those in the East Coast area.

All pretense that such rationing would be due to disruption of transportation was dropped during the week, and officials admitted that the only excuse for general control of gasoline consumption would be the desire for conservation of rubber.

With that in mind, Senator Lee of Oklahoma telegraphed President Roosevelt and WPB Director Nelson, urging that a conference of the governors of oil producing states and industry representatives be called before any general rationing order is issued.

Such a conference, he said, would permit the situation to be fully explained to the public before any action is taken and then, he added, "if gasoline rationing will contribute rubber to the war effort and a reasonable explanation is given to our people, they themselves will enforce it."

Truman Committee Report

With the Truman Committee report for a springboard, the Senate on May 26 got into a lengthy debate on gasoline rationing which, under the skillful steering of Senators O'Mahoney of Wyoming and Wheeler of Montana, eventually wound up in a discussion of monopoly in the oil industry.

Senator Hatch of New Mexico started the talk by telling the Senate that rationing in his state "didn't make sense," declared that "by curtailing the production, by the pipe lines refusing to take even the small amount of allowable production, the big oil companies are already forcing certain of the independent operators who pledged their money and their credit to the banks, to the point where they will soon have to go into bankruptcy."

"Then what will happen?" he asked. "Who steps in and takes over the independent when he goes broke? It is the majors, the large companies, that get it every time."

"When the major oil companies have succeeded in obtaining complete control of all our resources of oil, and the independent has been driven out, we shall be confronted with the demand that the government step in to take the place of the big monopoly," O'Mahoney predicted. "That is happening not only in the case of oil, it is happening in other fields as well."

"Who are the 8 or 10 men who are at present in charge of saying who shall manufacture rubber?" Wheeler chipped in. "Check them over. The man at the head of the rubber division of RFC comes from the Mellon Institute. The Mellon Institute is dominated by Mr. Mellon's group, which is interested in oil. The Carbon and Carbide Company uses the oil process for the manufacture of rubber. The government is turning over to the large oil companies the manufacture of rubber. So after the war is over they will not only control oil, gasoline and other petroleum products, but they will likewise have a monopoly upon all the rubber produced in the United States.

"Go down the line of the men in the War Production Board and the Reconstruction Finance Corporation. Every single one of them is either connected with an oil company or with some large rubber company which is tied up in some way with the great oil companies."

Public Hearing Demanded

The Congressional attack on national rationing climaxed May 28 in a demand of nine Senators headed by Senator Connally of Texas for a public hearing before action is taken.

The group proposed that the hearing be held before Donald Nelson, director of WPB; Leon Henderson, head of OPA, and Coordinator Ickes, and that the governors of the producing states, oil company representatives and citizens generally be given an opportunity to testify.

Participating in the move to force a show-down were Senators Thomas of Oklahoma, Johnson of California, O'Daniel of Texas, Ellender of Louisiana, Chavez and Hatch of New Mexico, Spencer of Arkansas and Doxey of Mississippi.

Previously, the Oklahoma House delegation has voiced opposition to extension of rationing to the producing states.

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"BIG-INCH" LINE: Asking for high priority on 340,000 tons of steel, a new application for the "big-inch" pipe line was submitted to WPB by OPC May 26.

No immediate action was expected on the request, it was indicated by Ickes two days later, because WPB plans to appoint a subcommittee of engineers to make a thorough study of the situation.

Before any decision is made, however, the coordinator hopes to be given an opportunity to argue his case before the board and, he assured a press conference, he will make a vigorous fight for the project.

Ickes expressed confidence that, if the application is granted, no difficulty will be encountered in financing the project. He pointed out that last year the companies were prepared to pay for the line and said if they now could not do so there was no reason why the government should not build it. What disposition might be made of the line after the war, he said, was something with which he was not concerned now.

Ickes estimated that it would require a year to build the line. That, he said, would be two months more than was estimated last year, due to the fact that pipe-line contractors are busy now on other projects, chiefly the digging up and relaying of pipe.

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CANAL - PIPE LINE: Immediate enactment of the Mansfield bill for improving the intracoastal waterway from the Mexican border to Trenton, N. J., with a pipe line across Florida pending construction of a canal, was recommended to the House last week by the Rivers and Harbors Committee as the Senate Commerce Subcommittee continued its hearings on the same subject.

Under the bill, an all-water route would be provided from Texas to New Jersey with a depth of 12 feet and a width of 125 feet.

In its report, the committee referred to the probability that more than 100 tankers formerly supplying the East Coast have been destroyed by enemy submarines, pointing out that all oil production in the Pacific islands is now in the possession of the enemy, rendering it necessary to supply our Armies and Navy by tankers.

"Even if there were no submarine menace in the Gulf and on the Atlantic Coast, all tanker ships now in existence, and all that can be produced, will be badly needed to supply the Armies and Navy across the seas," it commented.

"In these circumstances inland transportation for these commodities to the Atlantic Coast will have to be resorted to, regardless of the fact that it will be more costly than that heretofore afforded by ocean tankers. Rail lines, pipe lines, and inland water lines will have to bear this additional burden, even though they are poorly equipped for such an enormous task, and are already burdened almost or quite to the limit of the capacity of their present equipment.

"The rail lines are now transporting about 650,000 barrels daily, and the pipe lines and inland barge lines about 200,000 barrels. The proposed pipe line from Texas will add 300,000 barrels additional, and the proposed pipe line across Florida about 60,000 to 300,000 barrels, depending upon the amount and size of pipe that can be secured."

It will require a year to complete the proposed "big-inch" line, it was pointed out, but the Florida pipe line can be constructed in from four to six months. "All these additional facilities will be badly needed, and all together, even including a proposed substantial increase in the rail haul, will be insufficient to meet the demands for 1,600,000 barrels daily," it was declared.

"The barge channel across Florida authorized by this bill is the only proposal that can be made capable of supplying all the oil needs of the Atlantic Seaboard, in the absence of the ocean tanker service. The major portion of the shipments will consist of crude and fuel oils, which can be hauled in wooden barges, requiring little or no steel in construction.

"The barge - channel connection across Florida is the only proposal that will be capable of supplying all the oil and gasoline needs of the Atlantic Seaboard. The pipe line across Florida is the only proposal that can afford partial relief within six months or less. If authorized without delay, it will provide necessary fuel oil to New England and other states before the winter season."

RUBBER: With supplies of crude rubber expected to be exhausted by May, 1943, the special Senate committee investigating the national defense program called on the Army May 26 to adopt a strict conservation program so as to make the greatest possible use of such natural rubber as still remains available.

In a 57-page report, the committee warned that there will be less synthetic rubber produced in this country than has been optimistically promised from time to time by officials, and unless Army and Navy requirements are pared to the bone the military forces "may find themselves without rubber at some future date."

No hope whatever was held out for civilian supplies of either crude or synthetic for at least three years; national gasoline rationing and the requisitioning of tires must be given serious consideration, and there is little chance that either Brazilian rubber or guayule will be producible in any amount sufficient to change the broad outline of the picture.

The greater part of the committee's report was devoted to the story of synthetic rubber, and Standard Oil Company of New Jersey was alternately blamed and defended for its policies and actions.

"There is considerable evidence that the development of buna-s type rubber, which is regarded as the best type of synthetic rubber in the United States, was seriously retarded as a result of the 1929 agreement between I. G. Farben and Standard and the action taken pursuant thereto," it was declared.

But, the committee added, "there is no question of moral turpitude or of subjective unpatriotic motive on the part of Standard, or of any of its officials. On the other hand the relationship created by the agreement between Standard and I. G. Farben created a situation where Standard had to choose between fulfilling its obligation to I. G. Farben and what it might otherwise have regarded as its patriotic duty as an American business. As a result, Standard was repeatedly forced into situations which, taken individually and outside of the general pattern of this arrangement, can be construed only as most compromising."

Patents

The report emphasized, however, that a big business views patents not only as an offensive weapon by which to better its own commercial position but also as a defensive weapon to resist the efforts of other companies to better their relative position in industry and "unless a company in the position of Standard took careful and calculated action to arm itself with the strongest patent structure it could acquire, it would have been apt to find itself either paying an enormous tribute to other companies or being excluded entirely from various fields in which it was legitimately interested."

The committee reviewed the evidence submitted at its hearings to show how the I. G. Farben agreement repeatedly stood in the way of the oil company when problems came up in which all industry or the government were interested.

"Summarizing Standard's activities with reference to buna-s rubber up to Pearl Harbor, it is quite clear that in effect the cartel arrangement with I. G. Farben plus the cartel philosophy which remained even after I. G. Farben stepped out of the picture, seriously impeded developments of buna-s rubber," it reported. "On the other hand, Standard has not been backward in offering plans for large plants for raw materials and rubber to be built under government auspices for it and others. Much of its advice in that respect was sound and should have been followed, with, however, proper safeguards to prevent it from unduly exploiting the need for rubber for its own benefit."

Under the consent decree, it was pointed out, Standard has released its rubber patents, royalty-free for the duration of the war and, it was added, "the committee has the as-

[*Continued on page 41*]

New Illinois Spacing Rules to Bring Only Slight Drilling Gain

ILLINOIS oil men, state officials and members of OPC agree that only a relatively small gain in drilling activity will result from the partial relaxation of well-spacing regulations in the state, and the majority anticipate an even smaller gain in production. Recent new discoveries offer greater possibilities as production stimulants.

Because Illinois' production invariably has followed the trend of drilling activity (see chart), at first glance it would appear easing of well spacing regulations likely would result in increased drilling and therefore enlarged production. Due to the state's strategic location as the nearest big producing center to the East Coast, any substantial production gain would be a significant factor in relieving the shortage in that area. However, a closer study of the situation reveals that OPC's Illinois spacing plan (THE OIL WEEKLY, *May 25, 1942, page 40)* will not be effective in most of the state's currently active and more prolific areas. Therefore, the belief that only a slight drilling gain and an even smaller increase in production will result.

However, it is possible that the recent rapid decline in Illinois production, which since the first of the year has amounted to a decrese of 100,000 barrels in daily output, may be checked somewhat. Even this would help the East Coast situation, since every barrel of decreased recovery in Illinois makes it necessary to go to the Mid-Continent and Gulf Coast to make up the loss and thus involves almost twice the transportation distance. With the bulk of East Coast supplies now being delivered by tank cars, distance is important.

Twenty Percent Increase

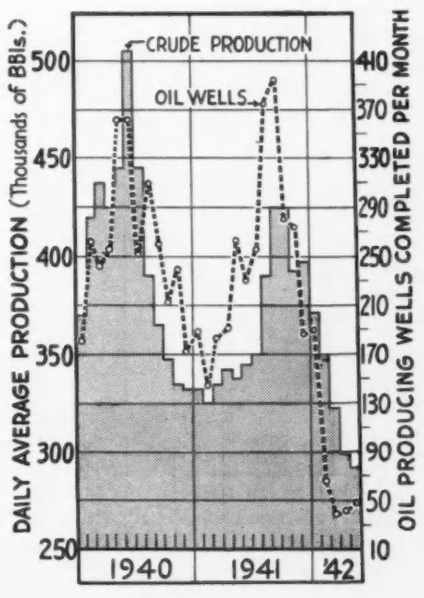
The possible impetus on drilling has been the subject of consideration in OPC, where it is generally agreed that the gain is not likely to exceed 20 percent. On this basis, completions in the state may climb back to 150 monthly, dependent of course to a large degree on the character of discoveries that may be made. This would still leave completions far below levels of last summer and spring, and little production gain could be expected, unless a field of unusual importance is found. None are on the horizon now.

Robert C. Jean, assistant superintendent of the state division of oil and gas conservation, and Samuel F. Peterson, chief state petroleum engineer, are of the opinion that relaxation of spacing rules—although helpful to some extent—will not lay the "groundwork for extensive field work which characterized the Illinois Basin regularly during the last five years."

Few Fields Affected

In the first place, with few exceptions the best producing reservoirs in Illinois lay between 2800 and 3500 feet. The Bethel (Benoist), Aux Vases and McClosky formations, which contribute the biggest percentage of the state's production, are below 2500 feet in most areas now being developed. The Tar Springs and Waltersburg sands are almost universally found at more than 2500 feet, and are of minor importance anyway. The Cypress sand, one of the state's better producing formations, frequently is more than 2500 feet deep. The new OPC spacing plan provides that exceptions will be granted to the 40-acre spacing rule on the following basis: 20-acre spacing if wells are not more than 2500 feet deep; 10-acre spacing if not more than 1500 feet deep; and 5-acre spacing if not more than 500 feet deep. Therefore, no change from the general 40-acre pattern is in store for the state's most prolific horizons in the majority of current hot-spots. It will influence a very small number of the newer fields only, and any future discovered shallow regions.

One of the few areas in the state to be substantialy benefited by the relaxation is the new Boulder field of Clinton County, where 250- to 400-barrel wells are being com-



Invariably Illinois production rates have followed the trend of drilling activity. An exceedingly sharp drop in drilling following promulgation of M-68 was accompanied by equally drastic decline in production, greatly aggravating East Coast petroleum supply shortage because of state's favorable location compared with other regions. This condition was largely responsible for relaxation of OPC spacing rules in Illinois. However, because most of Illinois' better producing prospects are below depths affected by new spacing program, little drilling gain and an even smaller production increase is anticipated.

Few Current Active Fields Will Be Influenced by New Illinois Spacing Plan

Producing Strata	Field	Approximate Depth (Feet)	New Spacing Pattern (Acres)
Aux Vases:			
	Albion	3040	40
	Dundas Consol.	2700	40
	Hoodville	3040	40
	Johnsonville	2990	40
	Mill Shoals	3220	40
	New Harmony Consol	2840	40
	Rural Hill	3200	40
	Walpole	3100	40
Bethel:			
	Albion	2900	40
	Allendale	2010	20
	Hoodville	2970	40
	New Harmony Consol	2710	40
	West Centralia	1410	10
	Woodlawn	1970	20
Benoist:			
	Boulder	1200	10
	Roland	2750	40
Cypress:			
	Allendale	1920	20
	Dundas Consol.	2490	20
	Storms	2680	40
	Griffin	2400	20
Devonian Lime:			
	Louden	3000	40
Levias Lime:			
	Benton, North	2710	40
	Johnsonville	3100	40
	Rural Hill	3210	40
McClosky Lime:			
	Albion	3110	40
	Allendale	2290	20
	Bone Gap	3270	40
	Centerville	3340	40
	Clay City Consol	2980	40
	Dale	3130	40
	Dundas Consol.	2840	40
	Goldengate	3370	40
	Hoodville	3190	40
	Kell	2625	40
	Johnsonville	3100	40
	Mayberry	3340	40
	New Harmony Consol	2930	40
	New Haven	2820	40
	North Boos	2780	40
	Parkersburg	3130	40
	Rural Hill	3250	40
	Sailor Springs	3050	40
	St. Marie	2850	40
Rosiclare:			
	Benton, North	2800	40
	Clay City Consol	2970	40
	New Harmony Consol	2910	40
Stray:			
	Louden	1530	20
	New Harmony Consol	2670	40
Tar Springs:			
	Benton	2110	20
	New Harmony Consol	2200	20
	New Harmony, South	2350	20
	New Haven	2110	20
	Roland	2240	20
	Sailor Springs	2330	20
	Storms	2300	20
Waltersburg:			
	Albion	2370	20
	Allendale	1540	20
	New Harmony Consol	2150	20
	New Harmony, South	2220	20
	Roland	2170	20
	Storms	2230	20
Weiler:			
	New Haven	2450	20
	Sailor Springs	2600	40

pleted in the Benoist around 1200 feet. Operators in this area can now drill on 10-acre locations instead of 40. A few other fields will be helped also, but there are not many. The Illinois side of the Griffin field can employ 20-acre spacing because the Cypress is found at about 2400 feet.

As one executive of a major company with considerable holdings in Illinois expressed it: "The announcement is a concession in appearance only. As far as we are concerned the situation is still confused because our good production is from depths of more than 2500 feet."

Men and Materials

Other factors also indicate that the relaxation of Illinois spacing regulations will not greatly increase drilling. Many operators, forced to disband drilling crews during the sharp curtailment that followed promulgation of M-68, are now having difficulty finding men to work although activity has grown but very slightly during April and May. During the long period of inactivity since January 1 many laborers found jobs in defense plants. They are loathe to leave this steady employment to return to the uncertainties of oil.

Illinois state officials and some operators believe lack of casing and other equipment would forestall a sharp gain in well completions. On the other hand, a conflicting equipment situation is indicated by a survey conducted by the Tri-State Petroleum Association for Defense Coordination. Questionnaires sent to 700 operators brought 230 replies which listed 1,500,000 feet of casing on hand ready for use. On this basis, independent operators are estimated to have 4,500,000 feet of casing, or enough for approximately 1500 wells. The association estimates major companies have enough pipe to drill another 1500 wells.

New Strikes Encouraging

More encouraging than prospects that spacing rule relaxations will increase Illinois production, or at least check the decline, is the success of wildcat operations during May. A total of 8 new fields were discovered during the month, the best record in some time for the state. Included among important field developments of May were the biggest discovery well of the year, a McClosky lime well (3333-48 feet) that flowed 700 barrels in 12 hours; finding of good oil production in the Benoist sand in the Boulder field at only 1200 feet; a 200-barrel Trenton lime producer in Madison County (2344-53 feet) that is significant due to being located on the extreme west side of the basin; the best Trenton lime producer in Salem field and one of best in this formation in state; and a good completion in the Coil field that revived interest in this area by producing 1168 barrels from Aux Vases sand at 2920-40 feet. Although most of these strikes are below the 2500-foot level, and therefore will be developed on 40-acre spacing, they offer encouragement that Illinois' production dip may be retarded.

Sharp Decline After M-68

Illinois drilling activity dipped sharply immediately after promulgation of M-68 with its 40-acre spacing requirement. Previously, the state had no spacing regulations and most drilling was on a 10-acre basis. The number of completions in December, 1941, and January, 1942, were 262 and 272 respectively, but dipped sharply in the two following months and recovered but slightly in April. Producing oil wells completed slumped even more sharply, there being a rise in percentage of dry holes. These data are set forth in the following table:

Month	Completions	Oil Wells	Dry Holes	Percent of Dry Holes
Oct. 1941	360	278	82	22.8
Nov. 1941	352	271	81	23.0
Dec. 1941	262	182	80	30.5
Jan. 1942	272	190	82	30.2
Feb. 1942	103	64	39	37.8
Mar. 1942	71	37	34	47.9
April 1942	95	41	54	56.8
May 1942*	118	51	67	56.8

* Preliminary estimate.

Illinois daily production has declined proportionately, dropping from an average of 398,000 barrels in December to 367,000 barrels in January, to 347,000 barrels in February, to 325,000 barrels in March, to 299,000 barrels in April and according to preliminary estimates fell to 294,000 in May.

Various organizations are still exerting pressure on Washington to obtain greater relaxation of spacing regulations in Illinois. Some contend that if the ban on 40-acre spacing is to be lifted only partially, the relaxation should be on whether the horizon is a sand or limestone rather than the depth of wells. They favor 20-acre spacing for lime fields and 10-acre for sand production.

Portable Basket Improves Moving of Derrick Parts

THE amount of labor involved in moving derrick from location to location may be reduced greatly by use of a portable basket or rack, which also expedites erection of the unit at the new site by providing partial separation and preclassification of the structure.

Previous to the recent introduction of this method of transportation dismantled derricks had to be moved by one of two methods: either bed loaded onto a body truck, or racked carefully and moved by winch line and crane. Either method was at the disadvantage of requiring much manual labor, the chore of loading and unloading as much steel as is contained in a rotary derrick being a long and wearying job, and one which requires the expenditure of considerable time if materials are to be guarded from damage.

Use of the crane and winch line also subjects material to possible damage through the desire of the operator to rush the job. This method also is applicable only on relatively short shifts, as from one location to an adjoining site.

First considerations for avoiding this material and time loss involved construction of a boat or container large enough to contain all the structure of the derrick except the heavy sub-base and the water table; this plan being rejected because of the weights involved in handling, and also to the fact that parts needed at any certain time were most likely to be at the bottom of the material in the rack.

As finally constructed the equipment for moving a derrick consisted of three units or baskets built of reclaimed tubing and sucker rod, and collectively capable of carrying the entire structural parts of a derrick, with the exception of the (usually) unitized substructure beams and the heavy water table—these being handled as before by means of winching to place on the truck bed.

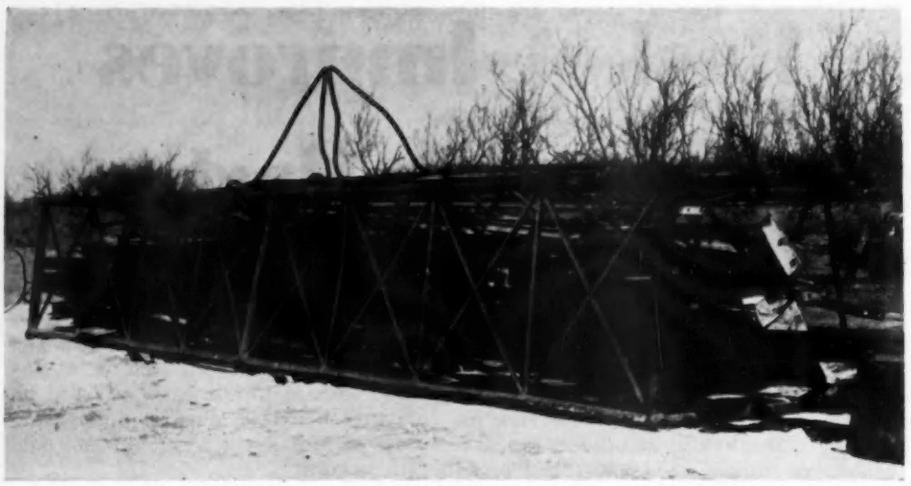
The basket, welded throughout, is provided with one side rigidly fixed at 90 degrees to the base, the side being braced with diagonal crossed strips to prevent sagging under load. The opposite side, also braced for structural rigidity, is affixed to the side rail of the base by means of loops formed in the vertical braces, so as to allow this side to hinge about the rail and lie flat to facilitate stacking or removing of the derrick members from the basket.

This drop side eliminates the need of lifting heavy derrick parts over the side, and possible damage through their being dropped onto material already stacked. Both sides are equipped with lifting bails, hinged to permit closure above the load, and into which a winch line or crane hook may be inserted to provide a straight lift.

These baskets are equally convenient for both long and short hauls. For short moves a loaded unit is picked up and transported directly by crane truck, without disengaging the truck hook from the bails, or precaution other than anchoring one end of the basket to the truck to prevent swinging.

For long moves, or moves over a highway, the baskets can be loaded onto a long truck body by means of winch or crane, or stowed parallel on a relatively short truck or tractor unit and corresponding

Hinged side of basket laid flat for ease in loading, derrick parts may be stacked simply by laying down as lowered during the dismantling operation, and the service line thrown off, eliminating all hand transfer of steel from ground to truck bed. Lattice bracing provides truss effect which insures rigidity.



When filled with its predetermined third of the derrick structure, the hinged side is swung up to vertical by the winch line or crane hook, and the other bail then engaged to give a firm grip along the contents of the rack through the leverage attained by closing the hinged section against the beams and angles.

trailer and held in place with the usual binder chain.

By use of three of these baskets or containers, it is possible to segregate the parts of the derrick as it is being dismantled, and to load the resulting sections onto the proper baskets so that when the material reaches the new location it is merely a matter of placing the proper basket adjacent to the site and to begin using parts in usual order in re-erecting the unit.

Stacking of the derrick parts in these baskets or racks instead of attempting to pile them on a truck bed permits all the manual labor of stacking to be performed at ground level, and by placing the rack adjacent to the derrick site, saves all transportation of parts by hand.

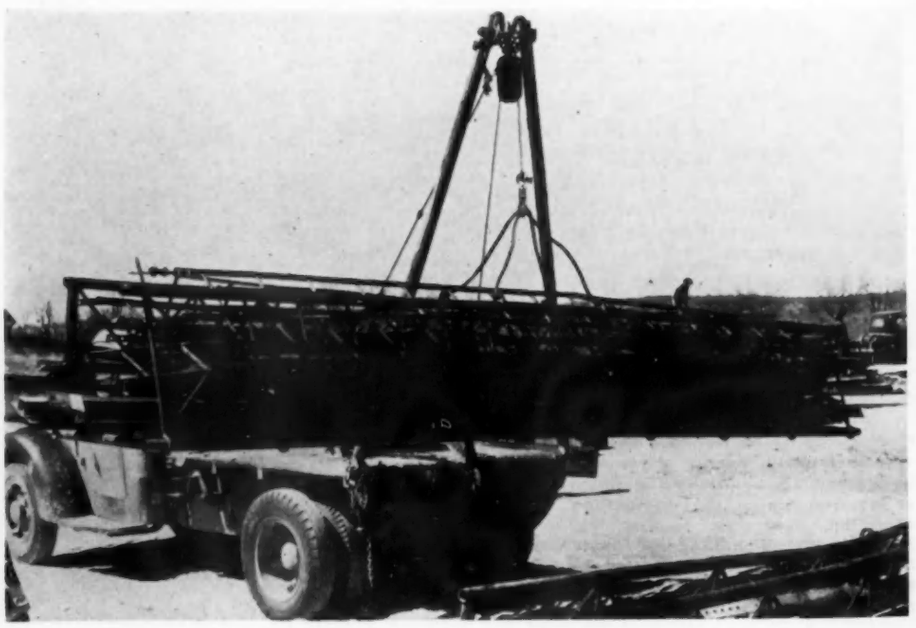
The hinged side of the rack affords sufficient squeeze or grip on the derrick parts to insure their retention within the device during transportation, and eliminates the former damage sustained when a wire line or chain around a pile of material was cinched tight with a boomer or with the aid of the truck winch for safety during the move.

Should it be desirable to increase the grip of the basket on its contents, it is necessary only to loop short chains across the top rails of both fixed and hinged sides and to tighten them with a boomer, the pressure being distributed across the load by the lattice-braced sides, and the tightening chain kept clear of the derrick parts.

Use of the baskets permits each unit to be unloaded at the new site exactly where it will be used in the erection routine, and the material may be placed so as to permit withdrawal and lifting of each piece with a minimum of confusion and manual shifting.

By handling the derrick in three sections, even with the weight of the basket or rack, the unit loads are well within the power of the usual winch or crane truck, while the separation of the structure into three parts permits handling of one section over terrain where it would not be advisable to attempt to move the entire load, and where otherwise it would be necessary to unload by hand until the desired load had been attained.

When not in use, the hinged sides permit the three racks to be stacked in the space usually required for one such structure, conserving space and permitting storage under shelter as protection against corrosion. Two such racks, with the fixed sides facing outward, may also be utilized to form an improvised "stake body" truck for the transportation of blocking, random pipe, or other similar material.



With the bails set on the side rails at points which normally give proper balancing, it is necessary only to guide the swing of the loaded basket as it is hoisted by the truck unit, to remain suspended for a short move, or to be nested on the truck bed if the move involves highway or difficult travel.

Special Arrangement of Mud Systems Necessary on Drilling Barges

By GORDON B. NICHOLSON, Staff Writer

WELLS drilling from barges in bayous, lakes, and bays of marine oil fields require equipment of a different nature than that which is used on dry land, and drilling muds, which are no exception, necessitate installation of special devices for handling. Customary earthen slush pits dug in soil by draglines, of course, are not feasible, and other apparatus is needed for mixing and storing drilling fluids. Oil companies and drilling contractors combine individual ideas for mud handling on drilling barges, hence, many barges conform in general design; however, other unique features which provide more satisfactory performance are occasionally used. While drilling barges, in isolated cases, are stationed in fresh water lakes located in the interior, their use in coastal waters is widespread and almost completely dominates the drilling scene, with a large concentration of barges at work in open waters and dredged canals in South Louisiana and on the Texas Gulf Coast.

For ordinary drilling conditions in marine fields, barges generally are patterned along standardized lines. To comprehend fully the relation of mud handling apparatus with remaining equipment, a review of the usually accepted plan and arrangement of drilling apparatus on barges presents many interesting features.

In general, barges are constructed having three decks or stories, the lower deck having a flat hull and water-tight compartments. The base serves as a bouyant pontoon when floating, but, when sea cocks are opened for flooding, permits sinking to allow bottom of barge to rest on floor of the bay or canal. Shape is rectangular, and in the forward end of the base, a wide slot extends inward to a point located well beyond the center of the barge, although some barges are constructed with twin hulls, the space between hulls providing slot which extends the entire length of the barge. This slot furnishes open space for the key way made of piling driven into the sea bottom and acting as guide for maneuvering and anchoring the barge into position before drilling, and it also allows removal over the Christmas tree when floating after completion of well.

The bottom deck remains below surface of the water during drilling, and only the top protrudes, forming a base or floor for the second deck. The slot also extends through the end of this deck, splitting it into two halves at the forward end of the barge. On each side of the slot is located a rectangular steel tank, the two tanks providing reserve pits for the mud system. At the stern, in positions corresponding to positions of the two forward tanks, the slush pumps are located on one side, and the active slush pit on the side opposite, arranged to provide floating balance for the barge. In the approximate center, directly beneath the rotary and about midway between the three pits and the pumps, and near the inner end of the slot, the casinghead is located during drilling, and the surrounding portion of the deck is devoid of large equipment, allowing open space to facilitate manipulation of blowout preventer and other valves.

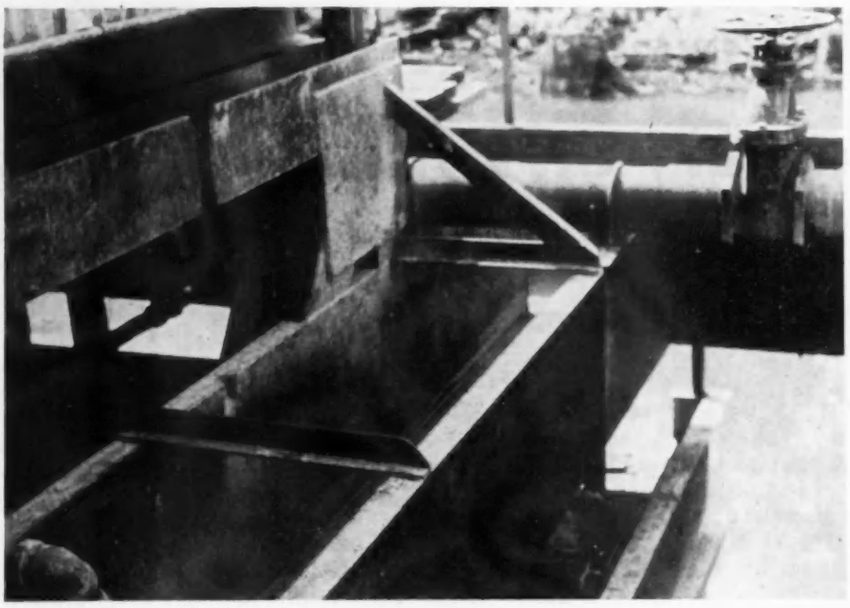
The upper deck constitutes the main operating portion of the barge, being located over the pumps, slush pit, and the casinghead. Draw works and engines are situated directly above the pit and pumps. Over the reserve pits and opposite the draw works, on a level slightly lower than the floor, pipe racks are placed, with an A window furnished in the derrick to permit raising pipe to the derrick floor. The rotary table is located in the center.

Principal mud handling equipment is centralized on the middle deck. In typical barge installations, mud returns leave the casing by one flow line, although in many cases a double line is used; and returns are transported to one side of the barge through 4-inch or 6-inch flow line pipes and carried to the shale shaker. Many rigs are equipped with two shale shakers, while often degassers are used.

Fluid mud leaving the shaker drops into a settling chamber placed immediately below, while cuttings are segregated for disposal. Settling chambers are deep-bottom steel boxes about eight feet long, erected to remove sand and other solid particles from the mud before it is turned into the slush pits. Mud enters the boxes at one end, and flows over baffles to reach adjacent compartments. The chambers have two or three such compartments separated by baffles, and flow through them is restricted to overflow, with the result that there is little disturbance, and the period of quiescence allows sand to settle. Mud leaves the box by overflowing into the mud ditch, which is attached to the upper section of the last compartment and receives only surface fluid from the top of the chamber.

Usually settling chambers are manipulated according to particular requirements, with baffles removable or adjusted to desired height and spacing. Trap doors opening to the outside are provided for cleaning, with water-tight fittings to prevent leakage of mud. Accumulated sand and solids are removed through the doors.

Mud ditches are made of steel plates which are welded together to form open-top troughs about 18 inches deep and two feet wide, mounted at a slight slope to facilitate flow of the fluid. Design of the standard circulatory system directs ditches from the shale shaker to the stern of the barge on the slush pit side, where a 90° angle turns it across the barge, extending beyond the pumps and emptying into the slush pit on the opposite side. At all turns, removable gates are placed to keep fluid in the channel. When cleaning solids from



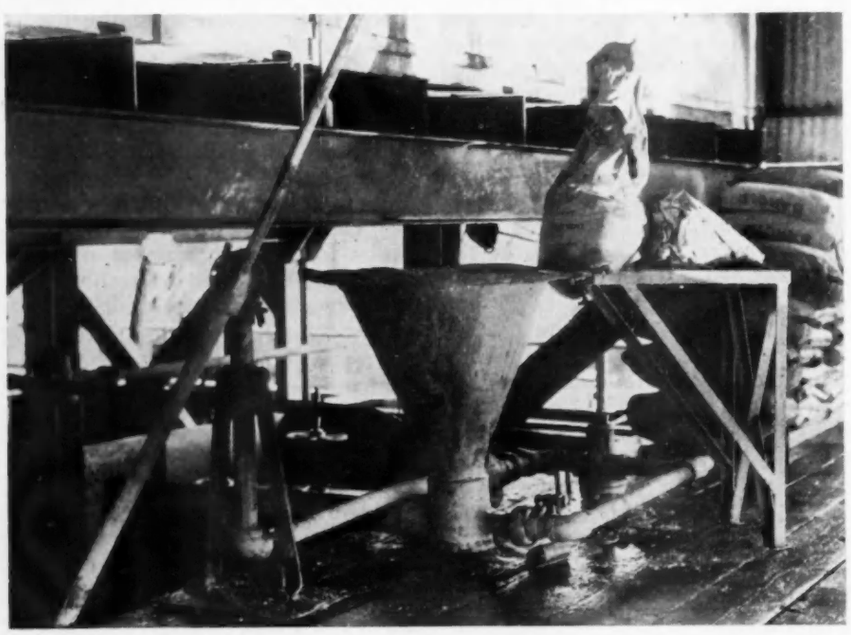
Mud ditches are made of steel and are set at a slight tilt to facilitate flow. Turns are provided with removable gates as an aid to cleaning. These ditches take mud from settling chamber to slush pit.

ditches, end gates are removed to facilitate emptying the residue.

Mud Circulating System

Mud returns are emptied into one corner of a rectangular mud tank.

All tanks are designed according to specifications adopted by individual companies, usually being equipped with one or more baffles to remove sediment. Baffles generally run longitudinally the length of the tank, and are made of steel plates which form a low barrier splitting the tank into two halves, some plans utilizing overflow method as a means of skimming fluid from top while sand and sediment settle; while other tanks have a baffle with a 1-foot square window cut in top of the end located farthest from the inlet, to provide fluid passage. Mud overflowing through the window conducts circulation over a definite route before delivery to suctions. Tanks have a capacity of about 600 barrels each.



Hoppers are usually placed on a large platform over the slush pit. Space is provided for storing mud sacks and for workers to move about, and jet guns are usually located in convenient place. On some rigs, hoppers are placed near the casinghead and connected to the flow line, taking freshly mixed mud directly to slush pit.

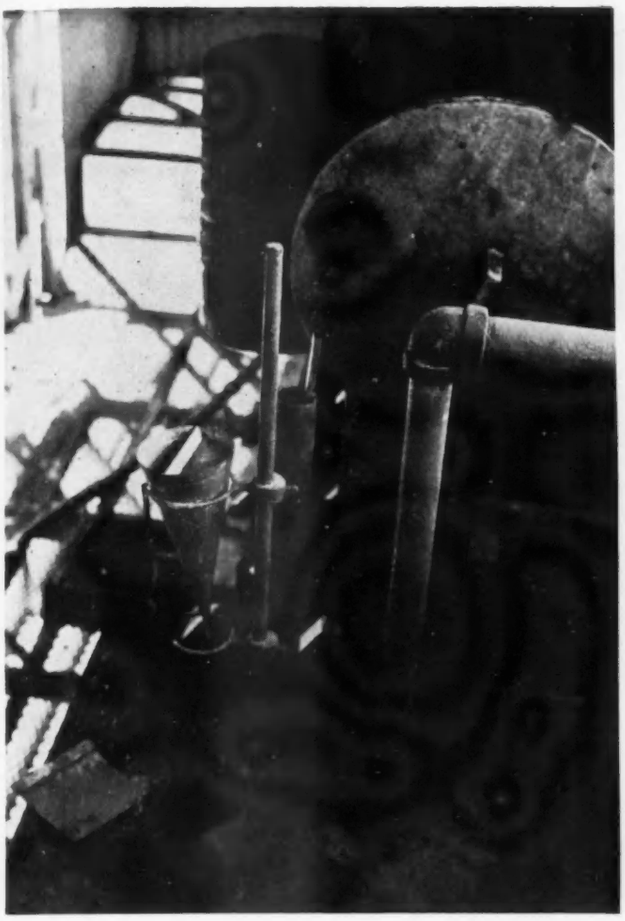
Slush pumps are located opposite the slush tank and are spaced several feet from it to attain proper balance. Suctions, adaptable to pull fluid to pumps for re-delivery to the circulatory system, are provided with rotating hand winches to adjust height. Usually two pumps are provided, and the most common type found in coastal fields are steam-driven, connected by insulated pipes with the boiler barge. Power and electric rigs employ similar arrangement of pumps, and often extensions run through overhead flooring, to allow manipulation of pumps from drilling floor.

Reserve tanks are usually interconnected, and also are joined by appropriate lines with pumps and slush pit, allowing their supply to be drawn upon quickly when additional mud is needed in the circulatory system.

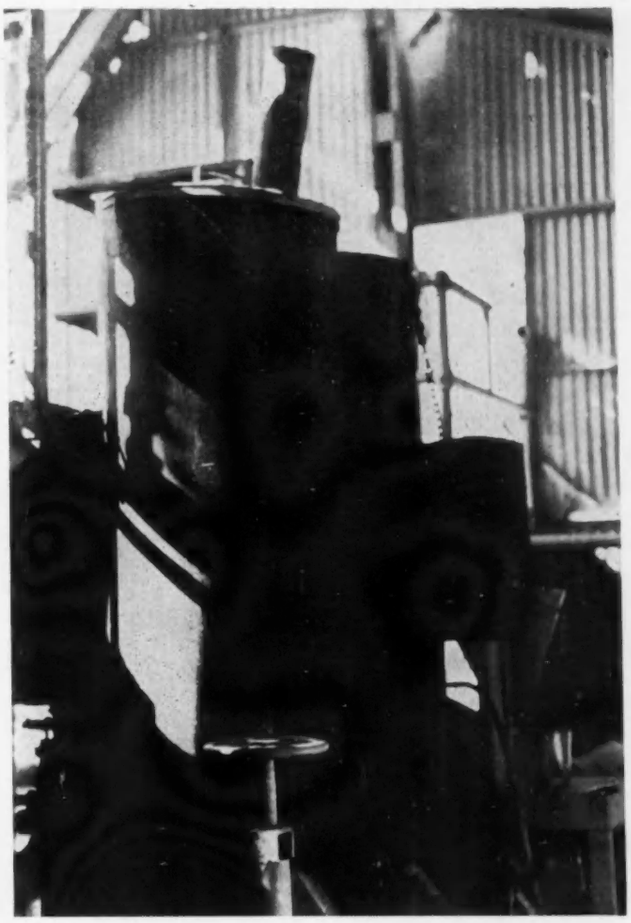
Arrangement of Special Equipment

In addition to these fundamental and largely standardized parts of the mud system, other features are used which are developed almost entirely to satisfy desires of individual operators. Such equipment includes location and arrangement of hoppers and jet guns, storage facilities for excess mud, location of chemical apparatus, means for disposition of shale, and source and storage of water supply for mud and boilers. While these devices vary in selection, installation, and maintenance, and follow no particular pattern, a few of the more widely used ideas should be mentioned and their use and service described.

Hoppers for mixing mud may be placed at any convenient place; however, on the majority of rigs, the hopper is located directly over the slush pit on a platform. The platform is usually large enough to allow setting several sacks of mud for temporary storage while mixing, and often jet guns are placed immediately next to the hopper to facilitate the process and arranged to allow directing flow under pressure into any part of the pit. On some barges, hoppers are located on the flooring near the casinghead and are connected with an auxiliary mud return line. In such installations, abundant space is available for mixing and storage. Often, the hopper is placed on top



Chemical testing equipment is usually provided, the apparatus shown here is located near shale shaker where samples may be taken easily.



Two containers of two-barrel capacity each are provided on this rig for mixing chemicals. Water and steam connection join the cylinder for heating and stirring.

of the mud ditch, and mud is injected into the ditch as it leaves the hopper. Jet guns are always placed near the slush pits, usually directly above, have platforms large enough for workers to stand while mixing, and are adaptable to turn in any direction to contact mud in all parts of the steel tank.

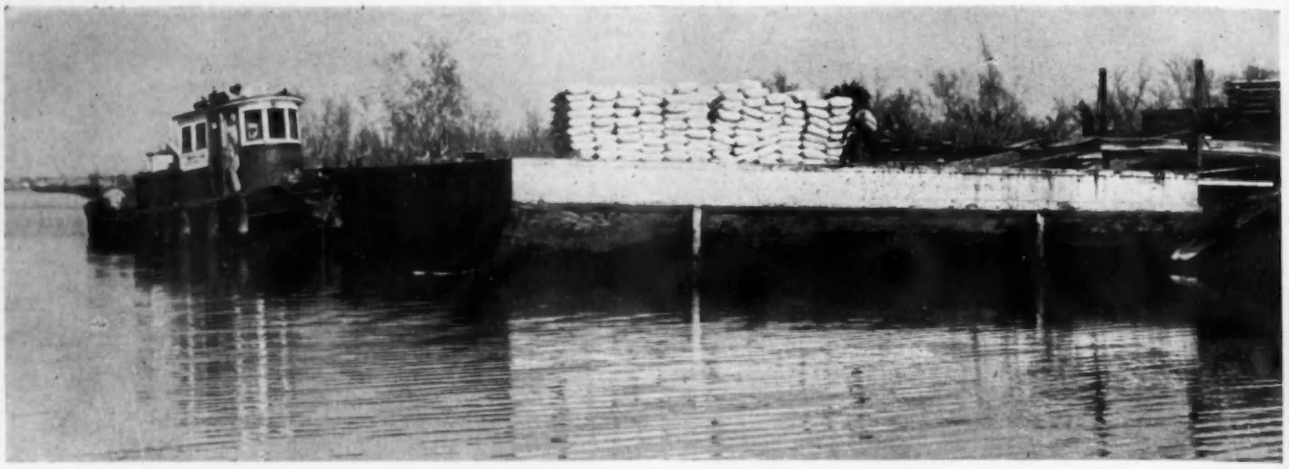
Chemical equipment is usually situated near the shale shaker. On some rigs, a platform is provided running from the shale shaker across the top of the sand settling chamber, and often a table is also furnished for placing mud testing apparatus, including viscometer and weight testing devices. One company uses tall steel drums with capacity of two barrels each, for mixing and injecting chemicals into mud stream, and these are furnished with water and steam connections for heating and proportioning properly. In these cookers, chemical muds which require heating are processed before allowing to enter the mud system. Use of two heaters assures uninterrupted service of chemical injection, with one tank being prepared while the other is used.

Disposal of Cuttings

Shale and cuttings washed to the surface with mud returns are usually drained to one side of the barge. Sometimes a sloping trough carries cuttings from the barge, having sufficient tilt to keep heavy particles moving. One oil company active in marine areas uses a special swivel extension for ejecting cuttings from the system, distributing over a wide area. Extensions are made of 6-inch pipe about 20 feet long, swung to the outlet pipe leaving the shale shaker. The pipe is held in position by a guy line running through a snatch block in the derrick and attached to a corner post, and, when it is properly adjusted, additional guys are fastened to the ends and bound to the barge deck to hold securely. End of extension pipe is changed frequently during drilling by releasing and readjusting guys, swinging end into a different position to spread deposits.

Cuttings are kept moving through the long pipe by means of salt water which is continually circulated to prevent congestion. Water is obtained from the canal or bay, and is also utilized as cooling element in the steam condensing system installed for saving fresh water. With fresh water often difficult to procure, many steam rigs are equipped with a closed steam exhaust system, with all steam condensed and returned to boilers. Sea water, lifted by centrifugal pumps and flowed through condenser, cools the exhaust steam, is then piped to the shale shaker outlet and into exhaust pipe, keeping solid cuttings moving and constantly emptying into the water.

Procuring of fresh water for steam rigs has always presented a troublesome and expensive problem for operators in marine fields of the coast where most drilling is done in salt water. As a rule, water is shipped to drilling barges from fresh water sources, from wells or from bayous above the salt water zone, and is stored in auxiliary barges tied to the drilling barge



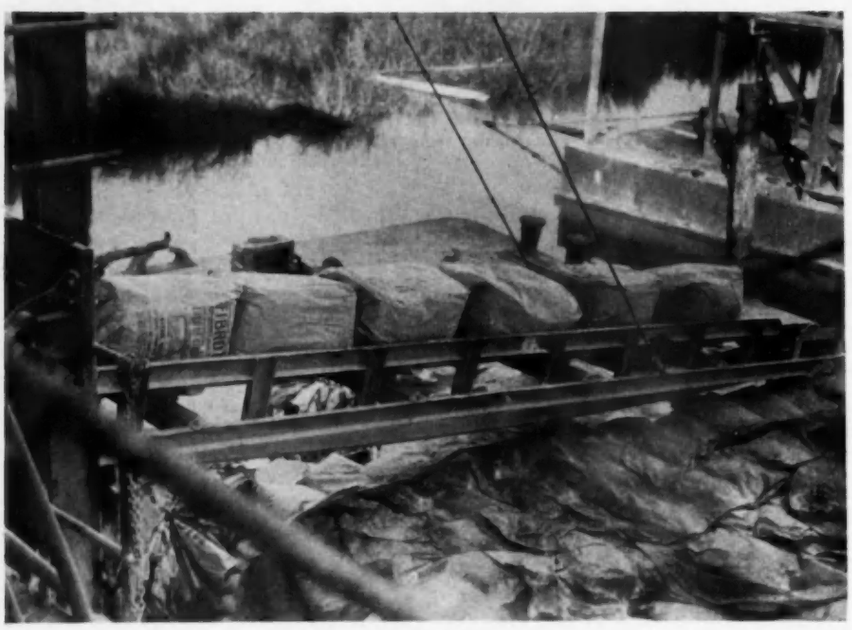
Sacked mud is loaded on flat barges for transporting. Deliveries are made in this manner to rigs in bayous, bays, and in the open waters of the Gulf of Mexico.

while operating. This water is used both for the boilers and for mud mixing. Some operators install evaporators, distilling salt water for boilers, but the process is relatively expensive and to date has no widespread use in mud preparation.

Abundance of salt water leads to efforts to utilize this supply for muds, despite the prevalent opinion that salt water is not adaptable for making good drilling fluid. However, due to the cost and inconvenience of obtaining fresh water, sea water is often used,* but this practice demands considerable thought, as use of an undesirable drilling fluid often causes serious difficulties, especially in deep wells and in areas where heaving shale may be found or use of weighting material may be demanded.

Several rigs have mud storage houses, where sacks containing mud are unloaded from delivery barges and stored until needed. Others have small storage space over the slush pit in a small house which also contains the hopper, facilitating mixing of mud by having the supply and mixing apparatus located close together.

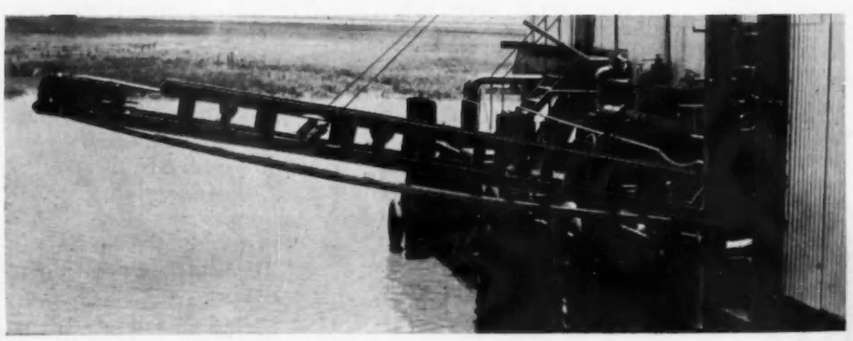
* "Marine Drilling on the Gulf Coast," by I. W. Alcorn, The Oil Weekly, April 4, 1938.



Transporting Mud to Rigs

Sacked mud is towed by tugs to drilling barges on flat equipment barges sent from one of the numerous distribution centers located near marine fields. These are ordinary flat-bottom barges, adapted to enter the Intracoastal Canal or the small bayous of South Louisiana as well as to venture into the rougher, unprotected waters of the bays and the open Gulf of Mexico. The barges are large enough to carry heavy equipment, and normal volume of mud for ordinary wells occupies only a small area on deck.

Upon arrival at rig, mud sacks are usually unloaded by hand and placed in the proper storage space.



Unloading of mud at marine rig sometimes is facilitated by conveyor, which is lowered, as shown above to barge deck. An electric or steam engine turns endless belt, which carries sacks to proper level for storage. When not in use, conveyor is raised as shown at right. Steel cables fastened to movable end of track and running through snatch block in derrick makes it easy to raise by winch.

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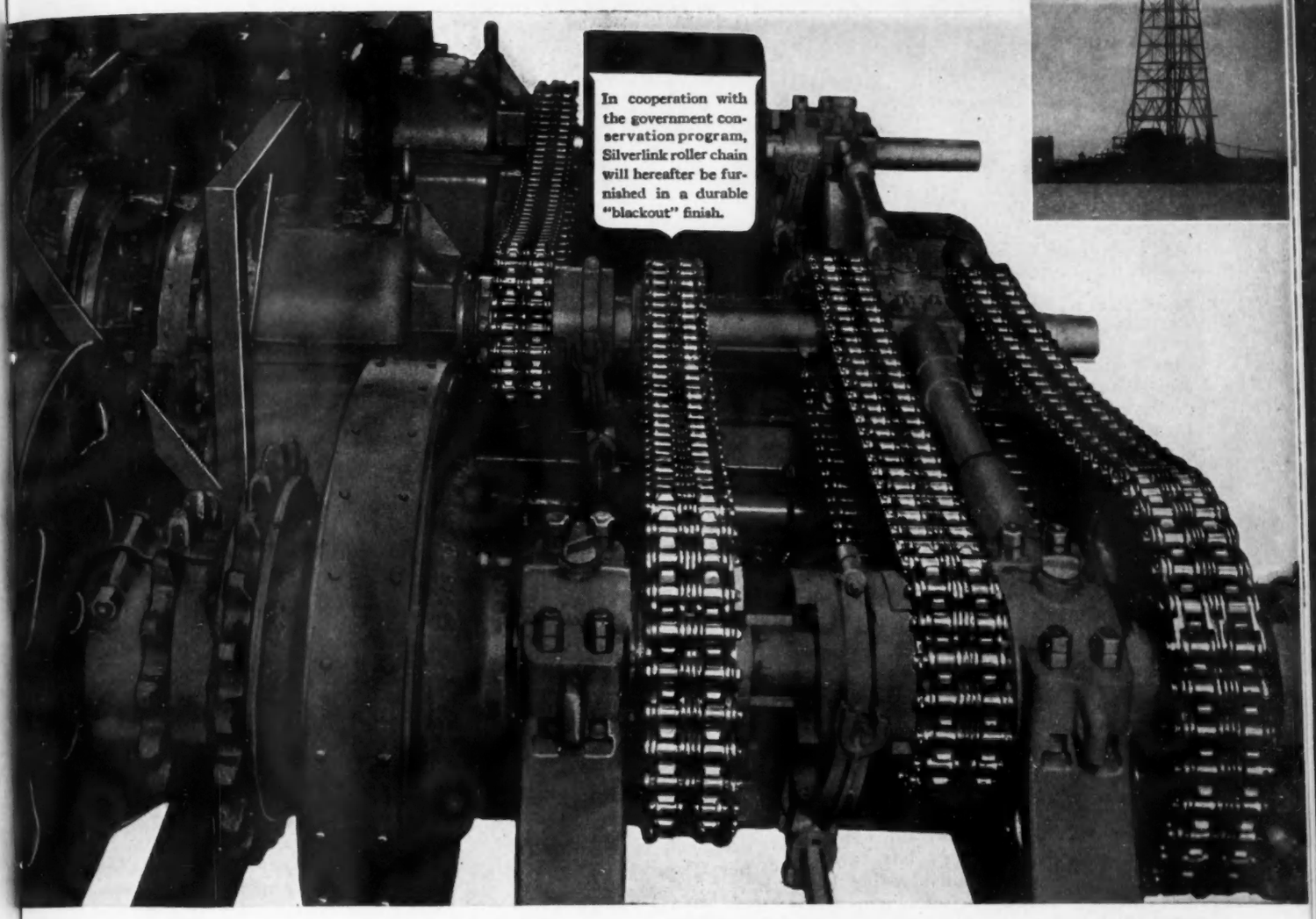
In cooperation with the government conservation program, Silverlink roller chain will hereafter be furnished in a durable "blackout" finish.

● Oil being where you find it, many of the world's better producing spots were headaches, from the standpoint of accessibility, for the men who pioneered them to the pay-off. Locations, such as the one pictured several miles from shore in the Gulf of Mexico, often give the operator poor access to his supply point. Miles of hauling via improvised swamp roads to a suitable water front . . . thence by boat to location . . . is not uncommon in getting equipment on a drilling job. Thus does the unfailing dependability of the products used at such remote points become, more than ever, a major factor. That's where Link-Belt *Silverlink* Roller Chains come in.

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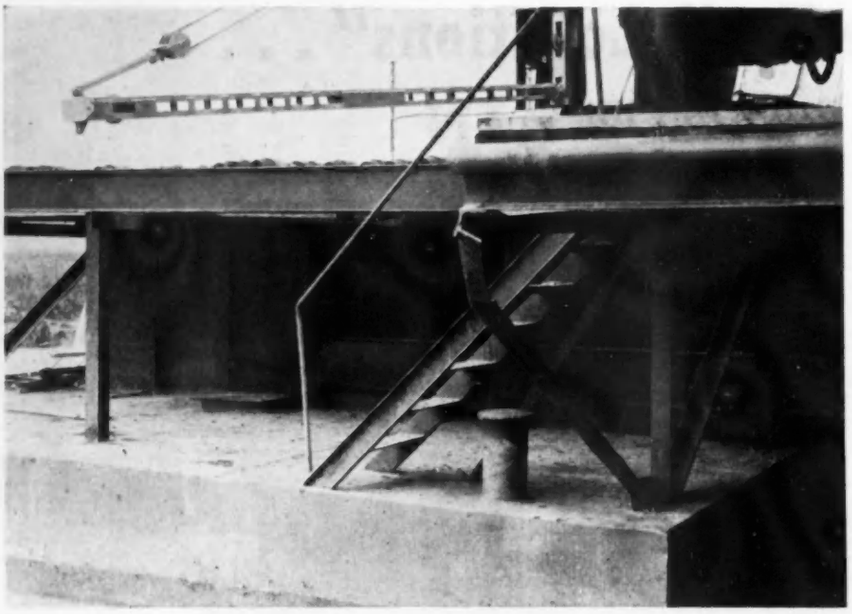

Reserve tanks are located under pipe racks, one on each side of the slot. Tanks have capacity of about 600 barrels, and reserve supplies are easily connected with main circulatory system.

One major oil company, however, on each rig has an adjustable conveyor consisting of an endless belt for lifting mud to floor level. These conveyors are raised in crane-fashion by means of a steel cable string from winch and running through a snatch block in the derrick and attached to movable end of the conveyor track. By using winch, end of the conveyor is adjusted to the proper height, raised when not being used, or lowered to barge deck for unloading mud. After the end is lowered, a steam or electric motor starts the belt, and workers on the barge place on mud sacks as it moves. When sacks reach the top, another member of the drilling crew lifts them off the belt and stacks inside the house for storage. This method allows fast unloading of delivery barges and relieves crews of considerable heavy-lifting, enabling performance of other duties.

One large oil company which operates several rigs in South Louisiana gives direct delivery service on light weight muds and clays, having a centrally located mud plant where supplies of ready-mixed muds are stored and ready for shipment to rigs. The plant consists of an extensive excavation from which mud is dug, machinery for grinding and cutting and facilities for mixing in proper proportions prior to storage in tanks. Especially designed barges are provided to carry mud to drilling sites, loaded at the central plant, and having capacities of 1000 to 1200 barrels each. These barges, towed by tugs, are taken to the drilling barge where shipment is needed, and each has a steam pump on deck for attaching to lines at rig, to expedite unloading into the slush pit or the reserve pits. The delivery system allows inexpensive mixing and preparation of mud, and with three delivery barges available, needs at rigs are easily handled. A further economy and service offered by the mud plant is furnished by two steel tanks for storing chemical muds returned from rigs after completion of wells. These muds are washed from the hole and flowed into the delivery barge for returning to the central storage system, where they are retained until needed for subsequent drilling.

Other Type Installations

The drilling barge plan described, while the most common type used, does not constitute the sole design nor the only arrangement of equipment. Unusual conditions sometimes require special features in barge planning, and often drilling barges are abandoned in favor of other equipment in marine fields. Many operators prefer to use piling for the derrick when possible, in which case the usual practice involves provision of separate barges for drilling mud and pumps, stationed in the water near the rig. These are sunk in shallow water and rest on the previously leveled bottom.

One operator drilling wells on the Louisiana coast erects derrick and rig on piling in the marsh some distance from the canal. A barge containing boilers and slush pumps is sunk in a canal seven or eight feet deep, while a shallow-draft barge containing slush and reserve pits is floated into a corner and sunk in three or four feet of water, near the boiler barges for connection with the slush pumps and circulatory system.

Variation in water level sometimes necessitates unusually large installations. In some swamp areas where change in rain and tide level causes extreme fluctuations in depth of water, rigs and draw works are occasionally mounted on piling, and combination water and land equipment is used. A separate barge is provided for mud tanks and pumps, and is allowed to float on the water, eliminating use of extra-long piling which, in the case of the derrick, often raised the floor to a height ranging from 25 to 30 feet above water level during dry periods.

Arrangement of mud facilities on marine operations usually offer many desirable features which land operations must sacrifice, due principally to construction of drilling barges in units, with position of all equipment carefully planned and designed to give the most efficient performance. When a barge is completed, it constitutes a permanent structure, and all equipment contained aboard is moved in a single unit instead of each item comprising an individual transportation problem. Consequently, mud pits are located in the place most advantageous for drilling operations, and pumps are located in the position where they can offer the best service. Likewise, incidental equipment as hoppers, shale shakers, chemical apparatus, and jets are placed in carefully chosen sites. Once these items are arranged on a barge, it is unnecessary to remove them upon completion of wells; their position is permanent until a change is desired.

In addition to their ideal location, mud equipment, as well as other apparatus, is compactly arranged and easily accessible to workers. While almost every time a land rig changes location, different arrangements of equipment is expected, varying with local conditions in the drilling area, permanence of barge installations allows crew members to become thoroughly familiar with positions of all apparatus and enables deriving from it the most service, adding to overall operation efficiency.

Cleaning tubing with a mechanical scraper is accomplished usually in a few hours, depending upon the amount of paraffin accumulated. Lubricator, light mast, and all other equipment is carried on the truck. Power for the wire-line reel, as well as the crank wheel of the spudder arm, is taken off the rear wheel of the truck. Tension of belts is regulated by jack under rear bumper.

Systematic Removal Essential to Paraffin Control

By GILBERT M. WILSON, Staff Writer

ONE of the outstanding problems plaguing West Texas-New Mexico operators, exclusive of the current ills resulting from drastic cuts in producing allowables, is combating paraffin. While such problems steadily are becoming more serious, due largely to the increasing tendency for the substance to precipitate out as the fields decline and gas-oil ratios increase, nevertheless certain definite progress has been made in the last several years in controlling and checking the accumulation of paraffin.

Through efficient use of tubing scraping, steaming, and combinations of such controls that have been developed by service companies, along with some developments of control instigated by certain larger operators, the paraffin problem has been reduced mainly to a matter of properly scheduling the working over of affected wells.

Scraping devices probably have become most widely used. One service company, operating out of several bases located in both West Texas and New Mexico, has a fleet of small truck units that are specially equipped for scraping and cleaning out the string of tubing in a flowing well, for example, in as little as two hours total elapsed time from setting up the equipment to tearing down and leaving the location. Longer periods are required, of course, in wells in which particularly large amounts of paraffin have been permitted to accumulate and which have not been cleaned out for some time.

The three-foot scraping tool or knife is lowered into the tubing on a piano-wire line. A combination sinker bar and short-stroke jar are used in conjunction with the knife, similar to way in which the drill-stem and jars are used in a cable-tool outfit.

The wire-line reel, along with a spudding arm for use when a spudding action is needed, derives

power from a V-belt take-off on the left rear wheel of the truck. Ordinarily one man and a helper run the equipment on a typical job.

The truck is set up approximately 25 feet from the well, and a 13-foot lubricator, similar to those used for running pressure bombs, is removed from the overhead rack on the truck and set up on the tubing head of the well. This operation is facilitated by use of a light 16-foot mast that is set up over the well head.

Power from Truck

The left rear wheel is jacked up off the ground and a V-belt is fitted over the small pulley welded to a short extension on the wheel hub. One V-belt is used for running the wire line reel that is mounted on a sturdy bracket close to the back end of the truck, and another belt of different length is used for running the crank wheel of the spudding attachment. These brackets and arms are welded or bolted to and braced on the running board, fender and body of the truck. For all ordinary work, the car engine is run at only a moderate speed.

One of the novel and ingenious points concerning this efficient set-up is the manner in which the tension of the V-belt is adjusted. It is accomplished by placing a light hydraulic jack under the rear bumper. Lifting the car frame a few inches effectively tightens the belts to any desired tension. A turn of the release valve on the jack allows the body to settle down, making quick work of changing the belts.

Scraping Tool

Success of the scraping tool is centered in the construction of the two 3-inch spiral-shaped knives which revolve about the vertical axis of the body of the tool. Vertical movement along the shaft is limited by pinned hubs, to about ½ inch. The two blades have opposed twists, and are designed so that as the tool is lowered through the paraffin-constricted tubing, the blades will spiral downward freely.

When the tool is picked up, the blades, being thrust downward along the shaft against ratchet teeth, lock in place, thus forcing the tool to scrape the tubing as it is drawn upward. The lower half of the tool contains wing-shaped guides that keeps it centered in the tubing.

The spudding attachment frequently is used in jarring the tool downward through tight spots, as well as out of the tubing when particularly heavy accumulations are encountered. Several different jars are available, their strokes ranging from 14 inches to 4 feet. The spudding arm is used also in conjunction with a small over-shot fishing tool, when lost tools, or free-falling types of scraping tools have to be fished out of the tubing.

Deposits Accumulate in Upper Part of Tubing

Paraffin accumulations in the Permian Basin wells seldom have been encountered below approximately 1500 feet from the surface. In the majority of West Texas wells, accumulations range from the top

A free-falling tool, or "rabbit," used by some operators. Tool is left in the tubing string, and as the well is opened up at periodic intervals, the tool travels up and down, scraping off the small amounts of paraffin that have accumulated between shut-in periods.

The two spiral-shaped, opposed twist knives on the scraping tool are designed to rotate freely while traveling downward, but on picking up the tool, they lock in place, thus forcing the tool to scrape the tubing clean as it is drawn upward.

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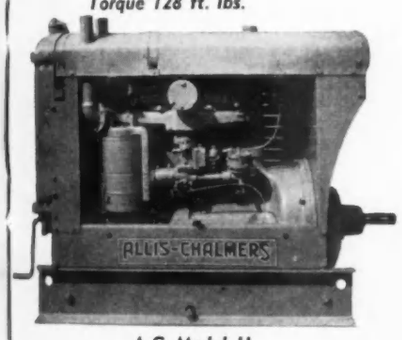

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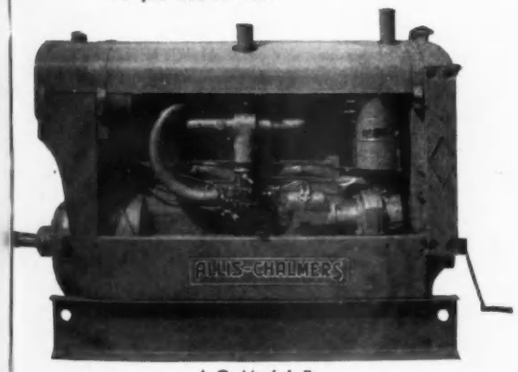
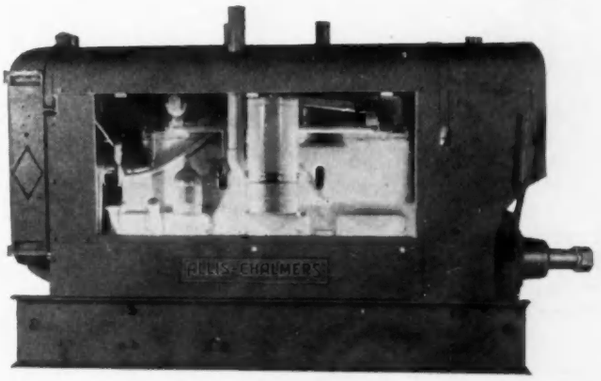


A-C Model E
Torque 400 ft. lbs.



A-C Model L
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down to 350 to 1000 feet, averaging around 400 feet. In New Mexico, the maximum depth of the major part of the accumulation seems to average about 600 feet, but in some wells, it has been found to extend down as far as 1400 feet.

This tendency to accumulate in the upper fourth to half of the tubing string probably is caused largely by the change in the earth temperature; the paraffin dropping out as the oil cools on approaching the surface. Continued expansion of the gas as the fluid reaches the surface produces an additional cooling effect that causes further precipitation of the paraffin.

Deposit in "Spots"

In certain districts, wells will be found to have a "spot" of paraffin some 50 to 100 feet long, somewhere near the bottom of the string. Such occurences no doubt are due to the proximity of a cased-off water sand.

It has been found that paraffin often accumulates in large quantities, in the annular space between the tubing and casing, at the point where the fluid level stands under static conditions. The same type of occurence would be found inside the tubing also at the point where the fluid level finally settled back and came to rest after the well has been shut in.

Wells producing with a higher gas-oil ratio usually are found to have a much harder paraffin deposit than other wells, and former paraffin-free wells, gradually start to have paraffin troubles as production drops off and gas-oil ratios gradually increase. In some areas where such conditions are particularly acute, wells often will seal off completely in from 25 to 30 days, oftentimes filling the entire string of tubing.

Done in Few Hours

In nearly all instances, except in the above case of a string becoming solidly packed, the mechanical knife will remove the paraffin in a matter of only a few hours. If a well is cleaned out regularly, say once every month or two, depending upon the particlar characteristics of each individual well, the scraping job can be completed in as little as two hours. More difficult jobs may take four, five, or six hours, or sometimes even longer, depending upon the amount and type of paraffin encountered.

Cleaning out to a depth of about 850 feet, the average quantity of paraffin and sludge recovered from a typical string of 2½-inch tubing will amount to three or four barrels. In certain particularly bad wells as much as 10 barrels has been removed with the mechanical scraper.

Our Methods of Control

Some companies have had moderate success through use of a free-falling "rabbit" — a 30-inch length of sucker rod having steel washers or discs welded at several points along the length of the rod. Opening up the well at frequent intervals causes the tool to travel up the tubing, then fall back, scraping the paraffin loose and allowing it to flow out with the oil. A steel bar welded across the open bottom of the tubing prevents the rabbit from falling into the open hole.

Circulating hot oil through the tubing will ramove paraffin, and this method has been used extensively, although it has several definite disadvantages. A longer time is required to melt and circulate out the paraffin than with certain later-developed methods. In addition to the cost of installing and maintaining boilers or heaters, plus the greater outlay of surface piping and fittings, there is the expense of treating the oil and cleaning tanks, since the removed paraffin drops out in the tank battery.

Reverse Circulation

Several operators have adopted a procedure similar to the above, but instead of using hot oil, liquid butane or other light ends is circulated and reverse-circulated through the tubing. Reasonably good results have been obtained thus far in the use of this method.

Steam, of course, has been used widely in paraffin control work, and while it has always done the job, the cost of installing steam lines and other surface installations has been high—and in some cases, as in remote or widely separated wells, almost prohibitive.

Within the past few years there have appeared on the market several types of small portable steam boilers, and steaming outfits, designed especially for various field jobs, such as the cleaning out of lead lines and tubing strings. One such boiler unit, mounted on a heavy truck and operated by the service company previously referred to in connection with the mechanical scraper, is becoming increasingly popular for various jobs which cannot be economically handled by other methods.

Special Cases Require Steam

When a tubing string is found to be full of paraffin—too full for a tool to be forced down through it—there remains little else to do but pull the string and lay it down in singles. Instead of resorting to mechanical methods of forcing out the paraffin plug, or of placing each joint over a long fire to melt it out, the small high pressure boiler is brought out to the job, and in a short time the semi-melted paraffin can be forced out and the tubing cleaned out with steam.

The boiler is particularly adaptable to hydraulically-pumped wells. When such a well indicates, by both increasing operating pressures and reduced production rates, that paraffin is accumulating in the tubing and restricting the flow, the boiler unit is brought up and connected into the casing connection. With the well continuing to operate, steam is directed into the annular space and the oil column is heated up to the point, where, as it is taken in at the pump inlet, paraffin and accumulated sludge will be melted off and pumped on out of the well with the oil. This method of cleaning out paraffin costs perhaps $15 to $20, as against $50 to $75 that it would cost if the macaroni and tubing strings were to be pulled, not to mention the loss of production caused by down time.

Each Well a Problem

Despite the several effective services, tools, and techniques that are available to the operator having wells in paraffin areas, it cannot be overemphasized that to properly control the accumulation of paraffin, it is essential that each individual well be studied. Learning its "frequency" of accumulation by closely checking the quantity of material removed the first several times it is cleaned out; closely checking sustained production rates in order to detect restrictions of flow; and finally, rigidly adhering to a definite, regular schedule of cleaning out, will go far toward reducing production costs, and the non-productive costs of combating the paraffin problem.

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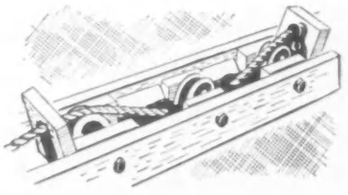
Pound for pound, wire rope probably has more bearing surface (inside the rope) than any other piece of machinery. Think of wire rope as a precision machine and you'll give it the same care as any fine equipment. All right, you say, what's the best type of lubricant to use—what's the best way to apply it?

As a starter, the best lubricant is one made specially for lubricating wire rope (never discarded crankcase oil!)... free from acids and corrosive elements . . . generally heavy-bodied, straight mineral lubricants of good penetrating and adhesive qualities. In addition, make sure it does not cake, gum or ball-up if contaminated with an excess of dust, dirt or metallic particles. And it must *not* thin down under high temperatures. If you're in doubt about what you're using, Roebling Engineers will give you recommendations as to the proper type.

Now, there have been lots of arguments about the best way to lubricate . . . principally because wire rope operates under such widely varying conditions. But here are some basic facts.

Some prefer to apply it with a brush. It's the simplest way—not always adequate but certainly better than none at all. If you brush, do it slowly, carefully, frequently . . . for it's the most difficult method to get complete coverage and penetration.



A better way is this simple three-sheave trough. It should be firmly fixed near the reel or drum, the lubricant applied hot and the rope run through not faster than 30 feet a minute. This method is practical and affords best results if followed at the time of re-reeling and changing locations. And, there are as many other good lubricating devices as human ingenuity can devise—to meet specific operating conditions.

One more pointer . . . be sure that your wire ropes are well lubricated when not in service—for when ropes are idle they are most susceptible to rust destruction. And, finally, set up a periodic lubrication and inspection schedule . . . so that you get maximum useful rope life . . . so that you get the *extra* service that has been built into every inch of wire rope that bears the Roebling Trademark . . ."

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Unsteady Flow of Vaporizing Hydrocarbons Through Unconsolidated Sand

T. Y. JU* and R. L. HUNTINGTON
School of Chemical Engineering, University of Oklahoma

Part III—A Study of Producing Rates

IN THE first two parts of this series which appeared in THE OIL WEEKLY of February 23 and May 25, the experimental apparatus and procedure were described. The correlation of these results with field data is suggested, along with the possibility of predicting the producing characteristics of such reservoirs.

Production Rate Equation

As mentioned in the first part of this series, the production rate equation suggested for gas wells by Pierce and Rawlins[6] must be modified to suit the conditions in reservoirs as represented in this investigation. If the rate equation takes the form,

$$\frac{\Delta Q_p}{\Delta T} = C\left(\frac{P_f^2 - P_s^2}{Q_o + Q_v}\right)^n \qquad (7)$$

a plot of $\frac{P_f^2 - P_s^2}{Q_o + Q_v}$ against $\frac{\Delta Q_p}{\Delta T}$ in logarithmic scales gives a straight line with a slope of $\frac{1}{n}$. These are shown in Figures 23 to 27, inclusive. The calculated data are given in Tables 19 to 23, inclusive. For run No. 1 (Figures 23 and 23a), run No. 2 (Figures 24 and 24a), and run No. 4 (Figure 26), Q_o is zero, because the pipe is full of liquid to start with. For runs Nos. 4 and 5 (Figures 26 and 27), cumulative Q_v is practically the same as cumulative Q_p due to the low vapor pressure of butane. In these calculations, P_f is the average pressure calculated by the formula,

$$P_f = \frac{2}{3}\left(P_1 + P_2 - \frac{P_1 P_2}{P_1 + P_2}\right).$$

Where there is any liquid present, its vapor pressure and back pressure, P_s, are used. Or when no liquid is present, calculations are made from the back pressure, P_s, and the pressure reading derived from the bottom gage, G_1.

Figure 23a is an extension of Figure 23, 24a, of 24, and 25a of 25. Figures 23, 24, and 25 represent the plot when there is still liquid present, while Figures 23a, 24a, and 25a represent the plot when only vapor is left. The points in Figures 23 and 23a, though not on the same straight line, have the same value of

* Home address—Chungking, China. This series of three papers is abstracted from a thesis submitted by Ju in partial fulfillment of the Master of Science Degree in Chemical Engineering at the University of Oklahoma, August, 1941. Present Address: Universal Trading Corporation, New York, N. Y.

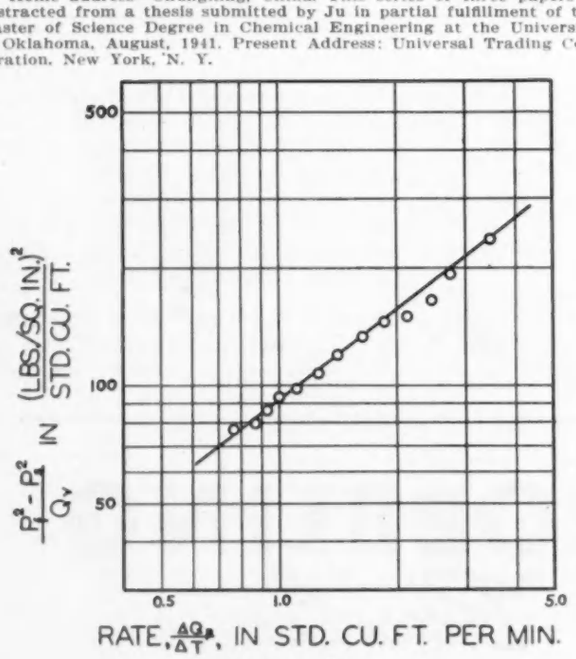

FIGURE 23
Verification of Equation (7). Propane, Run No. 1. Liquid present during producing period.

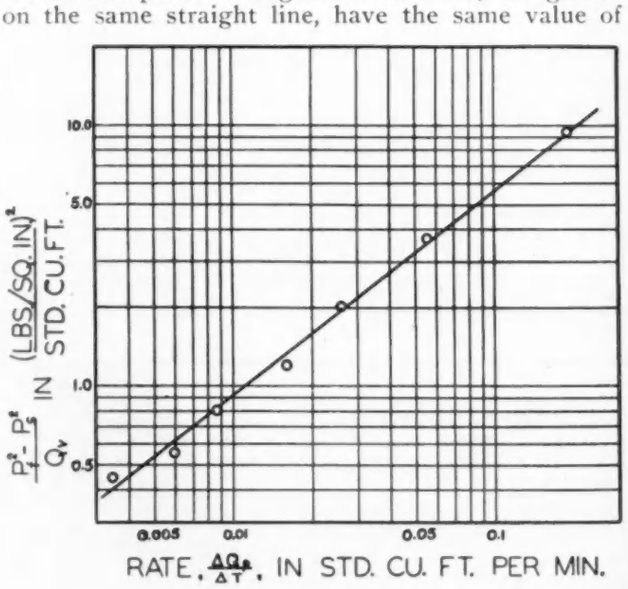

FIGURE 23a
Verification of Equation (7). Propane, Run No. 1. Producing period after exhaustion of liquid.

"DOUBLE E" TUBING SWAB

"DOUBLE E" 4-STEP TUBING CATCHER

"Double E" Tubing Catchers are designed in two types: for wells less than 4000 ft. deep and for wells more than 4000 ft. deep. They meet the outstanding need for increased Slip area in tubing catchers.

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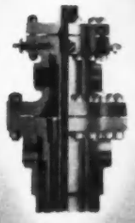

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A complete line of casing heads and tubing heads available to solve any problem affecting casing and tubing suspension and pressure control, in all the most popular types, including Split Ring, Recessed Coupling Type, Mandrel Type and Slip Suspension Type.

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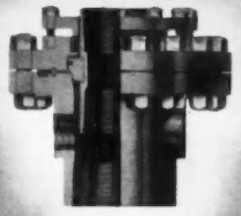

TYPE 9AM "RECTORHEAD" CASING HEAD

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For more than a quarter of a century, Lucey has furnished the most modern equipment to oil operators throughout the world.

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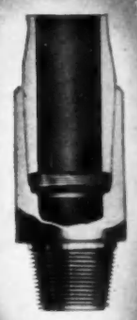

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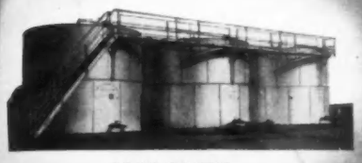

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Built in a variety of sizes in capacities from 100 barrels to 10,000 barrels. Accurately manufactured to A.P.I. specifications. MALONEY Tanks have the benefit of 28 years of specialized experience behind them.

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These separators have established records of high efficiency in the several years they have been in use. Latest improvements are: Increased capacity of initial chamber, new knock-out element of improved design, newly designed patented mist traps. MALONEY Separators meet all A.P.I. and A.S.M.E. Code requirements.

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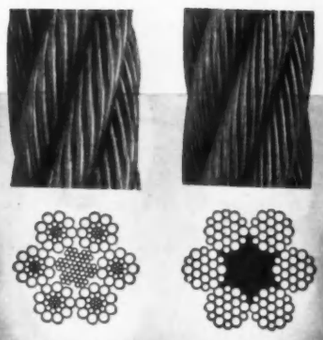
New Deal Pipe Cleaning Machines combine engineering research, manufacturing skill and practical field experience with sturdy construction, rapid and efficient operation. Built in three models and several sizes to meet varied requirements.



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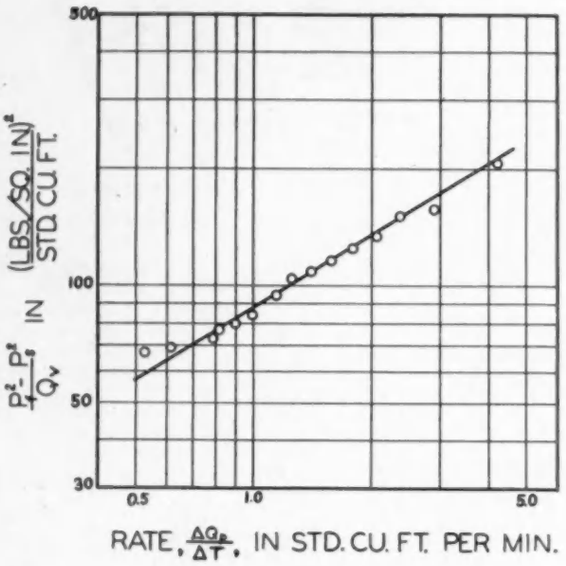


FIGURE 24
Verification of Equation (7). Propane, Run No. 2. Liquid present during producing period.

1.28 for n. The same applies to Figures 24 and 24a, except the value for n is 1.64. Figures 25 and 25a seem to represent a special case where the pipe was not full of liquid to start with.

Figures 26 and 27 are for butane runs Nos. 4 and 5, respectively. In these runs the back pressures are very low and do not always give accurate readings on the type of gages used. This source of inaccuracy seems largely responsible for the anomaly in Figure 27.

TABLE 19
Run No. 1—Propane
Rate of Production
Data for Figures 23 and 23a

Time, T, in Min.	Ave. Pres., P_f, Lbs. Per Sq. In. Abs.	P_f^2	Back Pres., P_s, Lbs. Per Sq. Inch Abs.	P_s^2	$P_f^2-P_s^2$	Cumulative Vaporization, Q_v, Std. Cu. Ft.	$\frac{P_f^2-P_s^2}{Q_v}$	Production Rate $\frac{\Delta Q_p}{\Delta T}$, Std. Cu. Ft. per Min.
5	158	24,964	140	19,600	5,364	22.46	239	3.42
10	145	21,025	118	13,924	7,101	36.69	194	2.71
15	141	19,881	108	11,664	8,217	50.23	163	2.48
20	135	18,225	95	9,025	9,200	62.01	148	2.14
25	130	16,900	80	6,400	10,500	71.96	146	1.85
30	127	16,129	73	5,329	10,800	80.80	134	1.64
35	125	15,625	65	4,225	11,400	88.66	128	1.51
40	123	15,129	60	3,600	11,529	96.25	120	1.41
45	123	15,129	58	3,364	11,765	103.17	114	1.31
50	122	14,881	56	3,136	11,745	109.76	107	1.26
55	121	14,641	54	2,916	11,725	116.14	101	1.17
60	121	14,641	51	2,601	12,040	121.82	98.7	1.11
65	120	14,400	48	2,304	12,096	127.47	95	1.06
70	120	14,400	46	2,116	12,284	132.67	92.7	1.00
75	119	14,161	45	2,025	12,136	137.76	88	0.98
80	119	14,161	43	1,849	12,312	142.72	86.5	0.94
85	118	13,924	42	1,764	12,160	147.31	82.5	0.90
90	118	13,924	41	1,681	12,243	151.88	80.5	0.87
95	117	13,689	36	1,296	12,393	156.28	79	0.82
100	116	13,456	34	1,156	12,300	160.25	76.8	0.77
110	92	8,464	26	676	7,784	167.26	46.5	0.56
120	43	1,849	16	256	1,593	167.26	9.5	0.19
130	29	841	15	225	616	167.26	3.7	0.055
140	23	529	14	196	333	167.26	2.0	0.026
150	20	400	14	196	204	167.26	1.2	0.016
160	18	324	14	196	128	167.26	0.8	0.0086
170	17	289	14	196	93	167.26	0.56	0.0060
180	16.5	271	14	196	75	167.26	0.45	0.0035

TABLE 20
Run No. 2—Propane
Rate of Production
Data for Figures 24 and 24a

Time, T, in Min.	Ave. Pres., P_f, Lbs. Per Sq. In. Abs.	P_f^2	Back Pres., P_s, Lbs. Per Sq. Inch Abs.	P_s^2	$P_f^2-P_s^2$	Cumulative Vaporization, Q_v, Std. Cu. Ft.	$\frac{P_f^2-P_s^2}{Q_v}$	Production Rate $\frac{\Delta Q_p}{\Delta T}$, Std. Cu. Ft. per Min.
5	138	19,044	115	13,225	5,819	28.15	206	4.22
10	131	17,161	101	10,201	6,960	44.56	156	2.90
15	125	15,625	84	7,056	8,569	57.47	150	2.39
20	120	14,400	72	5,184	9,216	68.85	134	2.09
25	117	13,689	63	3,969	9,720	78.62	124	1.80
30	115	13,225	55	3,025	10,200	87.10	117	1.58
35	114	12,996	52	2,704	10,292	94.73	109	1.40
40	113	12,769	47	2,209	10,560	101.39	104	1.26
45	113	12,769	44	1,936	10,833	107.62	101	1.21
50	112	12,544	43	1,849	10,695	113.78	94	1.15
55	111	12,321	43	1,849	10,472	119.42	87.5	1.10
60	110	12,100	41	1,681	10,419	125.04	83.5	1.00
65	110	12,100	39	1,521	10,576	129.61	81.6	0.94
70	110	12,100	37	1,369	10,731	134.66	80	0.90
75	110	12,100	34	1,156	10,944	138.77	79	0.85
80	110	12,100	33	1,089	11,011	143.32	77	0.82
85	109	11,881	31	961	10,920	147.15	74	0.81
90	109	11,881	30	900	10,981	151.61	72.5	0.79
95	109	11,881	28	784	11,097	155.19	71.4	0.74
100	108	11,664	26	676	10,988	159.15	69	0.62
110	107	11,449	22	484	10,956	165.36	66.5	0.53
120	79	6,241	19	361	5,880	169.94	34.6	0.40
130	38	1,444	15	225	1,219	169.94	7.2	0.17
140	28	784	15	225	559	169.94	3.3	0.054
150	26	676	14	196	480	169.94	2.8	0.026
160	22	484	14	196	288	169.94	1.7	0.016
170	20	400	14	196	204	169.94	1.2	0.011
180	18.6	345	14	196	149	169.94	0.87	0.006
190	17.2	295	14	196	99	169.94	0.58	0.003

Summary and Conclusions

From the results of the investigation presented here, the following conclusions may be drawn for a butane or propane reservoir:

1. The vaporization of butane or propane in unconsolidated sand is more or less isothermal, due to the large heat capacity of the sand body.

2. Due to the presence of sand, the pressure change in liquid phase cannot keep pace with the removal of the liquid by vaporization. Consequently there exists a pressure gradient between different heights

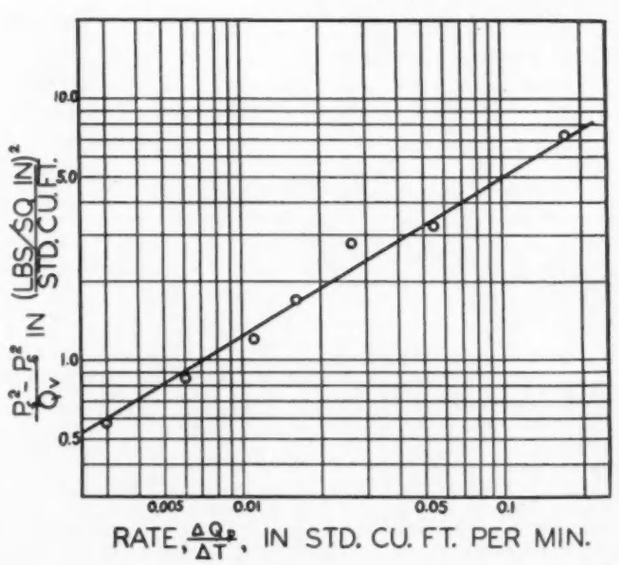
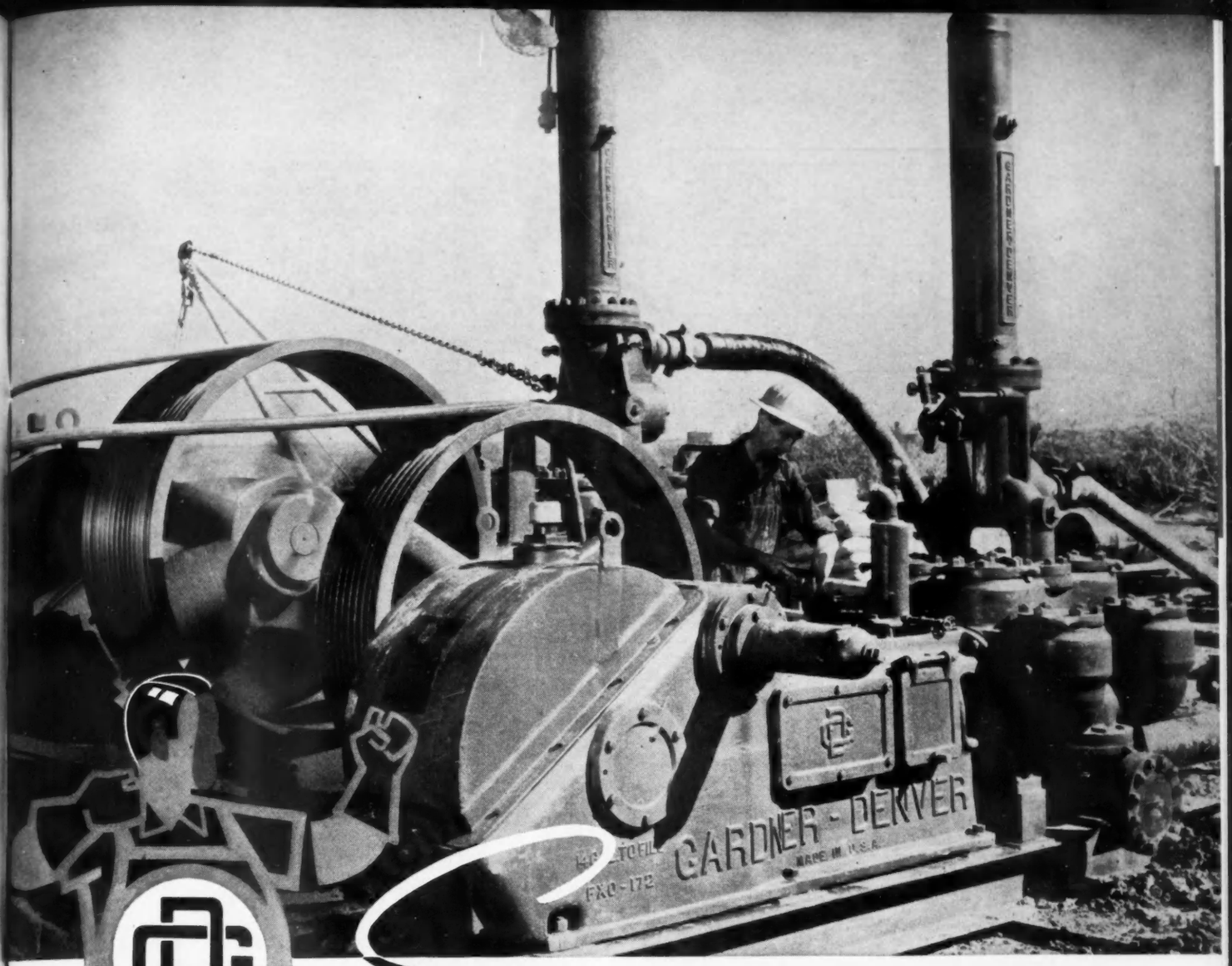


FIGURE 24a
Verification of Equation (7). Propane, Run No. 2. Producing period after exhaustion of liquid.



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The extra strength and stamina of Gardner-Denver "FX" Power Slush Pumps fits them for outstanding service on tough drilling assignments. Their dependable performance is assured by advanced design and engineering. The extensive use of GarDurloy—the stronger, tougher cast iron developed by Gardner-Denver—provides extra ruggedness where needed to withstand shock. See these pumps in action, and you'll know why they win such widespread user approval.

Write for bulletin giving complete specifications. Gardner-Denver Company, Quincy, Illinois.

MECHANICAL FEATURES OF "FX" POWER SLUSH PUMPS

1. Fluid cylinders, frames, and other parts are sound, strong, wear-resistant castings of GarDurloy.
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3. SLUSH-PROOF hardened liners and rods —SLUSH-PROOF Duo-Seat valves.
4. Positive flood lubrication assures adequate lubrication of all working parts.
5. Oil-stop and mud-stop heads keep mud and water out of power end.

"FX" POWER SLUSH PUMPS

Size	Capacity U. S. Gallons per minute	Maximum Pressure	B. H. P.
7¼ x 10	450	365	100
7¼ x 12	495	470	150
7¼ x 14	577	550	200
7¾ x 16	693	575	250
7¾ x 20	774	880	425

All sizes may be furnished with reduced sizes of liners and pistons for higher pressures.

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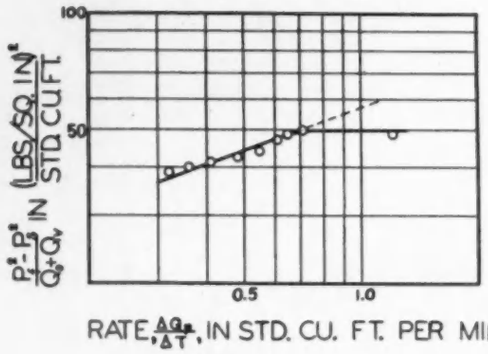

FIGURE 25
Verification of Equation (7). Propane, Run No. 3. Liquid present during producing period.

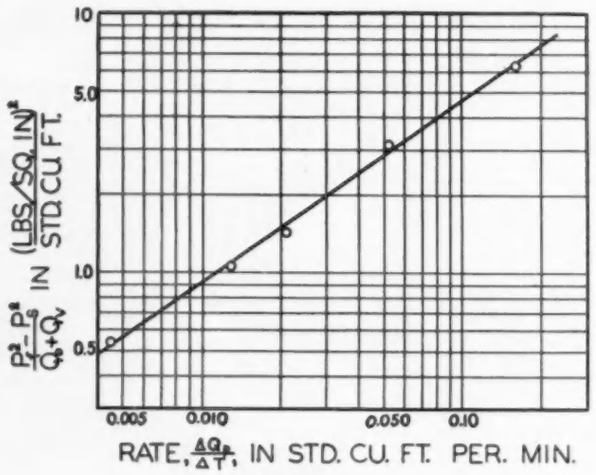

FIGURE 25a
Verification of Equation (7). Propane, Run No. 3. Producing period after exhaustion of liquid.

TABLE 22
Run No. 4—Butane
Rate of Production
Data for Figure 26

Time, T, in Min.	Ave. Pres., P_f, Lbs. Per Sq. In. Abs.	P_f^2	Back Pres., P_s, Lbs. Per Sq. Inch Abs.	P_s^2	$P_f^2-P_s^2$	Cumulative Production Q_p, Std. Cu. Ft.	$\frac{P_f^2-P_s^2}{Q_p}$	Production Rate $\frac{\Delta Q_p}{\Delta T}$, Std. Cu. Ft. per Min.
10	35.3	1,246	30.1	906	340	11.06	30.7	0.86
15	34.3	1,177	28.1	790	387	15.25	25.4	0.80
20	32.7	1,069	25.3	640	429	19.06	22.5	0.72
30	32	1,024	23.6	557	467	25.26	18.5	0.53
40	29.9	894	19.3	373	521	29.97	17.4	0.40
50	28.7	824	16.9	286	538	33.26	16.2	0.34
60	28.4	807	16.3	266	541	36.78	14.7	0.31
70	28.3	801	16.1	259	542	39.36	13.8	0.27
80	28.3	801	16.1	259	542	42.18	12.8	0.24
90	28.3	801	16.1	259	542	44.16	12.3	0.22
100	28.2	795	16.0	256	539	46.58	11.8	0.21
110	28.1	790	15.8	250	540	48.56	11.1	0.20
120	28.0	784	15.6	243	541	50.58	10.7	0.19
150	28.0	784	15.5	243	541	56.23	9.7	0.17
180	27.9	778	15.3	234	544	60.73	9.0	0.14
210	27.9	778	15.3	234	544	64.63	8.4	0.12
240	27.8	773	15.1	228	535	67.92	7.9	0.11
300	27.8	773	15.1	228	535	73.92	7.3	0.095
360	27.8	773	15.1	228	535	79.33	6.7	0.082
420	27.8	773	15.1	228	535	84.15	6.4	0.073
480	27.8	773	15.1	228	535	88.35	6.1	0.065
540	27.8	773	15.1	228	535	92.15	5.8	0.062
1020	27.8	773	15.0	228	535	112.23	4.7	0.042
1920	27.5	756	14.5	210	546	149.02	3.7	0.029

TABLE 21
Run No. 3—Propane
Rate of Production
Data for Figures 25 and 25a

Time, T, in Min.	Ave. Pres., P_f, Lbs. Per Sq. In. Abs.	P_f^2	Back Pres., P_s, Lbs Per Sq. Inch Abs.	P_s^2	$P_f^2-P_s^2$	Cumulative Vaporization, Q_v, Std. Cu. Ft.	* $\frac{P_f^2-P_s^2}{Q_o+Q_v}$	Production Rate $\frac{\Delta Q_p}{\Delta T}$, Std. Cu. Ft. per Min.
4	89	7,921	40	1,600	6,321	11.45	48.5	1.20
8	86	7,396	27	729	6,667	14.53	50.0	0.70
12	85	7,225	25	625	6,600	17.33	48.5	0.65
16	85	7,225	24	576	6,649	19.91	47.5	0.64
20	85	7,225	24	576	6,649	22.48	46.8	0.61
24	85	7,225	24	576	6,649	24.85	46.0	0.59
28	85	7,225	24	576	6,649	27.22	46.0	0.59
32	85	7,225	23	529	6,696	29.64	44.8	0.59
36	85	7,225	23	529	6,696	32.05	44.0	0.55
40	85	7,225	23	529	6,696	34.21	43.5	0.53
44	84	7,056	22	484	6,572	36.24	42.8	0.48
56	84	7,056	20	400	6,656	41.63	41.3	0.41
64	84	7,056	20	400	6,656	45.01	40.3	0.38
72	84	7,056	19	361	6,695	48.15	40.0	0.38
80	84	7,056	18	324	6,732	51.15	39.8	0.36
88	84	7,056	16	256	6,800	53.94	39.2	0.32
100	36	1,296	15	225	1,071	54.58	6.2	0.16
110	27	729	14	196	533	54.58	3.1	0.052
120	21	441	14	196	245	54.58	1.41	0.021
130	19.5	380	14	196	184	54.58	1.06	0.013
150	17	89	14	196	93	54.58	0.54	0.0045

* Q_o = (0.0217 x 93.6 x 0.334 x 31.24 x ¼₄ x 359) —54.58
= 173.9 — 54.6 = 119.3 cubic feet.

in the liquid section of the reservoir, over and above the hydrostatic head.

3. The curve for production-rate decline of reservoirs of this type is similar to that for reservoir depletion of the usual type. The only difference is the absence of the sharp initial drop in the case of the reservoir used in this investigation.

4. The cumulative production quantity is complicated with many variables, such as rate of production, temperature of reservoir, nature of hydrocarbons, etc., yet it may be expressed as a simple relation by

$$Q_p = \beta T^{\gamma} \ .$$

5. The rate of vaporization of the liquid declines in the same manner as the rate of production.

6. The rate of production can be expressed by a

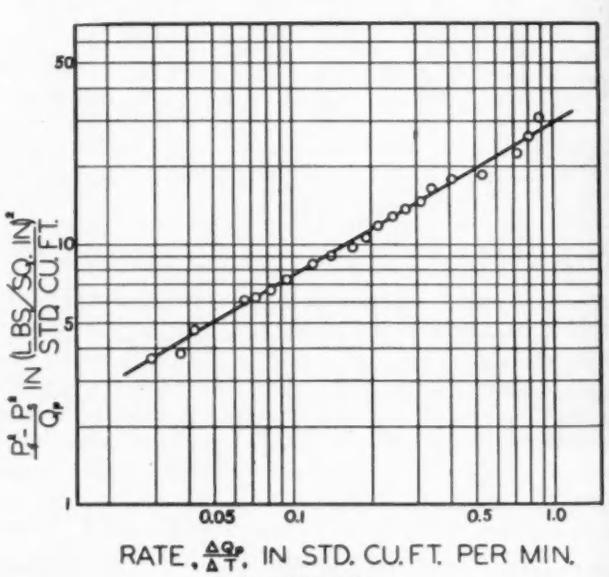

FIGURE 26
Verification of Equation (7). Butane, Run No. 4.

Stabbing 30-foot Bayonets of STEEL

Maybe you never thought of steel casing and tubing as weapons of war—but, figuratively speaking, every joint stabbed is a jab at the Japs.

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REPUBLIC *Electric Weld*

LINE PIPE...NORMALIZED CASING AND TUBING

Other Republic products include Sheets and Plates—Upson Bolts, Studs, Nuts and Rivets—Electrunite Heat Exchanger Tubes

TABLE 23
Run No. 5—Butane
Rate of Production
Data for Figure 27

Time, T. in Min.	Ave. Pres., P_f, Lbs. Per Sq. In. Abs.	P_f^2	Back Pres., P_s, Lbs. Per Sq. Inch Abs.	P_s^2	$P_f^2-P_s^2$	Cumulative Production Q_p, Std. Cu. Ft.	* $\frac{P_f^2-P_s^2}{Q_o+Q_p}$	Production Rate $\frac{\Delta Q_p}{\Delta T}$, Std. Cu. Ft. per Min.
5	30	900	19.6	384	516	2.81	11.3	0.39
10	29.3	859	18.1	328	531	3.93	11.3	0.21
15	29	841	17.6	310	531	4.92	11.1	0.19
20	28.8	829	17.1	292	537	5.81	11.0	0.17
30	28.6	818	16.8	282	536	7.33	10.6	0.15
40	28.5	812	16.6	276	536	8.81	10.3	0.14
50	28.5	812	16.6	276	536	10.13	10.1	0.13
80	28.5	812	16.6	276	536	13.91	9.4	0.12
100	28.5	812	16.6	276	536	16.20	9.0	0.11
150	28.3	801	16.1	259	542	21.36	8.4	0.10
240	28.3	801	16.1	259	542	30.31	7.4	0.09
330	27.8	733	15.8	234	539	38.41	6.6	0.078
420	27.8	733	15.3	234	539	45.40	6.1	0.070
1380	27.8	733	15.3	234	539	88.60	4.1	0.042
1500	27.8	733	15.2	232	541	93.60	3.9	0.040
1620	27.8	733	15.2	232	541	98.40	3.8	0.039
1740	27.8	733	15.2	232	541	103.10	3.7	0.038
1860	27.8	733	15.2	232	541	106.01	3.6	0.032
1980	27.8	733	15.2	232	541	108.88	3.5	0.015

* Q_o = 162.25 — 109.3 = 43 cubic feet
(Cf. Butane Run No. 4, Table 14.)

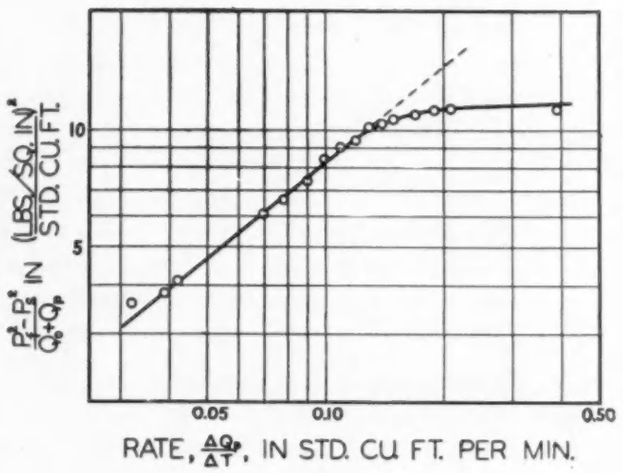


FIGURE 27
Verification of Equation (7). Butane, Run No. 5.

modification of Pierce and Rawlins'[6] formula for gas wells,

$$\frac{\Delta Q_p}{\Delta T} = C\left[\frac{(P_f^2 - P_s^2)}{(Q_o + Q_v)}\right]^n .$$

Q_o is zero if the reservoir has no gas cap and Q_v is practically the same as Q_p, especially for butane. Therefore, from the pressure decline data it is quite possible to estimate the future production rate by means of this equation within the accuracy generally required for practical application.

Acknowledgment

The authors wish to express their sincere appreciation and thanks to:

The Phillips Petroleum Company for the supplying of propane and butane used in this investigation.

Mr. C. R. Hetherington and Dr. H. C. Lu for their suggestions and assistance in obtaining the data.

Dr. T. M. Tieh for his reading over the manuscript and for his valuable suggestions

Mr. G. W. Robinson for his help in constructing the apparatus.

Nomenclature

α = Experimental constant.
β = Experimental constant.
γ = Experimental constant.
δ = Density of gas.
δ_c = Proportionality constant.
μ = Viscosity of gas.
∇^2 = Second derivatives with respect to the distance in three dimensions.
∂ = Partial derivative.
C = Experimental constant.
d_s = Diameter of sand grains.
f = Porosity of porous medium.
h = Sand thickness.
k = Permeability of porous medium.
m = Thermodynamic property of gas.
n = Experimental constant.
n_s = Number of the grains of the diameter d_s.
P = Pressure.
P_f = Shut-in formation pressure or average pressure.
P_s = Back pressure at sand face.
Q = Quantity of gas.
Q_o = Correction factor for the vapor space in reservoir when T = O, expressed in standard cubic feet of vapor.
Q_p = Cumulative production, standard cubic feet.
Q_v = Cumulative vaporization, standard cubic feet.
r_f = Radius of reservoir.
r_s = Radius of well.
T = Time.

Literature Cited

[1] Fancher, G. H., and Lewis, J. A.: "The Flow of Simple Fluids Through Porous Materials." *Ind. Eng. Chem., 25,* 1145, (1933).

[2] Hetherington, C. R., and Huntington, R. L.: "The Unsteady Flow of Natural Gas Through Porous Media." C. R. Hetherington's Master's Thesis in Chemical Engineering, Univ. of Okla., 1941.

[3] Muskat, M., *The Flow of Homogeneous Fluids Through Porous Media.* 1st ed. McGraw-Hill, New York, 1937.

[4] Muskat, M., and Botset, H. G.: "Flow of Gas Through Porous Materials." *Physics, 1,* 27, (1931).

[5] Muskat, M., and Meres, M. W.: "The Flow of Heterogeneous Fluids Through Porous Media." *Physics, 7,* 346, (1936).

[6] Pierce, H. R., and Rawlins, E. L.: "The Study of a Fundamental Basis for Controlling and Gaging Natural Gas Wells," Part 1, *Rept. of Investigation 2929,* Bureau of Mines, 1929; Part 2, *Rept. of Investigation 2930,* Bureau of Mines, 1929.

[7] Rawlins, E. L., and Shellhardt, M. A.: "Back-Pressure Data on Natural-Gas Wells and Their Application to Production Practices," *Monograph 7,* Bureau of Mines, 1936.

[8] Reid, L. S., and Huntington, R. L.: "Flow of Oil-Gas Mixtures Through Unconsolidated Sand." *Petroleum Development and Technology,* AIME, 127, 226, (1938.)

[*Continued from page 14*]

surance of responsible Standard officials that, despite passages in the 1929 agreements, its understanding with I. G. Farben is now dissolved, and that Standard has no obligation, moral or otherwise, to resume the relationship. It has the further assurance from these officials that it has entered wholeheartedly into the rubber program, and will not withhold its know-how or its information from the government."

Butadiene Bottleneck

Consideration of the production of any form of synthetic rubber, the committee disclosed, develops that the "real bottleneck" is in the raw material field, particularly in the matter of butadiene, and it is in the butadiene field that a government-sponsored program has proven to be most important.

Arnold at It Again

Over the week-end, Assistant Attorney General Thurman Arnold launched a new attack against Standard, filing a 41-page "additional report" charging not only that the agreement with I. G. Farben blocked for years the development of synthetic rubber in this country but also that the company's board of directors was the motivating influence behind an attempt to make an agreement with the Japanese Mitsui firm which, Arnold said, failed only because of the opposition of Shell.

Arnold urged the committee immediately to write legislation to deal with cartels, declaring that the Standard situation was not an isolated instance but that "the same basic story can be told in magnesium, aluminum, tungsten carbide, drugs, dye stuffs, and a variety of other materials vital for the war."

"We cannot wait until the end of the war to put an end to these cartels," he said. "If we would have strength in war and security in peace we must solve this problem now."

☆

PRICES: A thorough study of the needs of the industry for ceiling price adjustments and other forms of compensation which may be granted by the Office of Price Administration was launched over the week-end by William R. Boyd, Jr., chairman of the Industry War Council.

Boyd announced creation of a committee on cost and price adjustment to make the study and take other action toward securing relief for the industry, to be headed by Dr. John D. Gill, The Atlantic Refining Company, Philadelphia, as chairman. Membership of the committee is to be composed of the general chairman of each of the district general committees.

The committee was instructed to prepare a case record for use of district or council committees which may be named to present cases to OPA; to act in cooperation with such committees, and generally to serve as a liaison between the industry and OPA and OPC on matters relating to cost and price adjustments.

Talk of Subsidies

With the change-over from a gasoline to a fuel-oil economy, the industry, already bearing a tremendous burden of increased transportation and distribution costs and facing a diminishing civilian market, has made representations to Washington officials that readjustment of the price structure is inevitable if it is to survive.

Complex studies of the whole situation have already been initiated by OPA, which has secured voluminous material from OPC, and there is much talk in Washington of subsidies to tide the industry over the emergency.

☆

WOOD PIPE LINE: Construction of a wooden pipe line from the California fields to Oregon and Washington was proposed in the House of Representatives May 25 by Congressman Angell of Oregon as a means of combating the threatened shortage of oil products in the Pacific Northwest.

Angell told the House that wood pipe lines have been used in the past for irrigation purposes and have "not only been practical and serviceable but durable and of moderate expense."

"Engineers with long experience in this type of construction are of the opinion that wood pipe lines may be used successfully in the transportation of petroleum products," he said.

CONNALLY ACT: A brief hearing at which little or nothing was added to the record made over previous years was followed May 28 by a favorable report by the Cole subcommittee of the House Interstate and Foreign Commerce Committee on the Connally bill making the "hot oil" act permanent.

The subcommittee's report is expected to be adopted by the full committee, paving the way for action on the legislation before the act expires by limitation June 30. In all probability, the measure will come up on the floor of the House this week or next. It already has been approved by the Senate.

☆

RESEARCH: Nearly $150,000 was added to funds of the Bureau of Mines for investigations of synthetic motor fuels and $4,000,000 was provided for expansion of helium production by the Senate Appropriations Committee last week in writing its version of the Interior Department's appropriation bill for the coming fiscal year.

Based on representations of department officials that such investigations now are more important than through the past several years in which the bureau has been engaged in them, the committee provided $43,000 for synthesis of motor fuel, of which $33,000 is for synthesis from water gas, and $20,000 for operation on a six-month basis of the experimental plant for synthesis at the Pittsburgh experimental plant.

☆

NEGRO LABOR: Whether the oil industry discriminates against colored workers was a matter of discussion in Washington last week, where the President's Committee on Fair Employment Practice reported that 36 California operators have written to Governor Culbert L. Olson that they do not and have not practiced any discrimination.

Both Standard and Shell reported that they employed negroes, and other companies made similar reports, although several said that no negroes had ever applied to them for jobs, while others said they "never had any occasion" to employ colored labor but maintained they would not turn down a job-seeker merely because of his color.

PRACTICAL OPERATING *Hints* FOR

THE practical operating hints for the drilling rig, production man and pipeliner, appearing regularly in these pages, are secured from oil operations everywhere and offer suggestions that will help to improve operating efficiency and safety.

The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, The Oil Weekly, Houston."

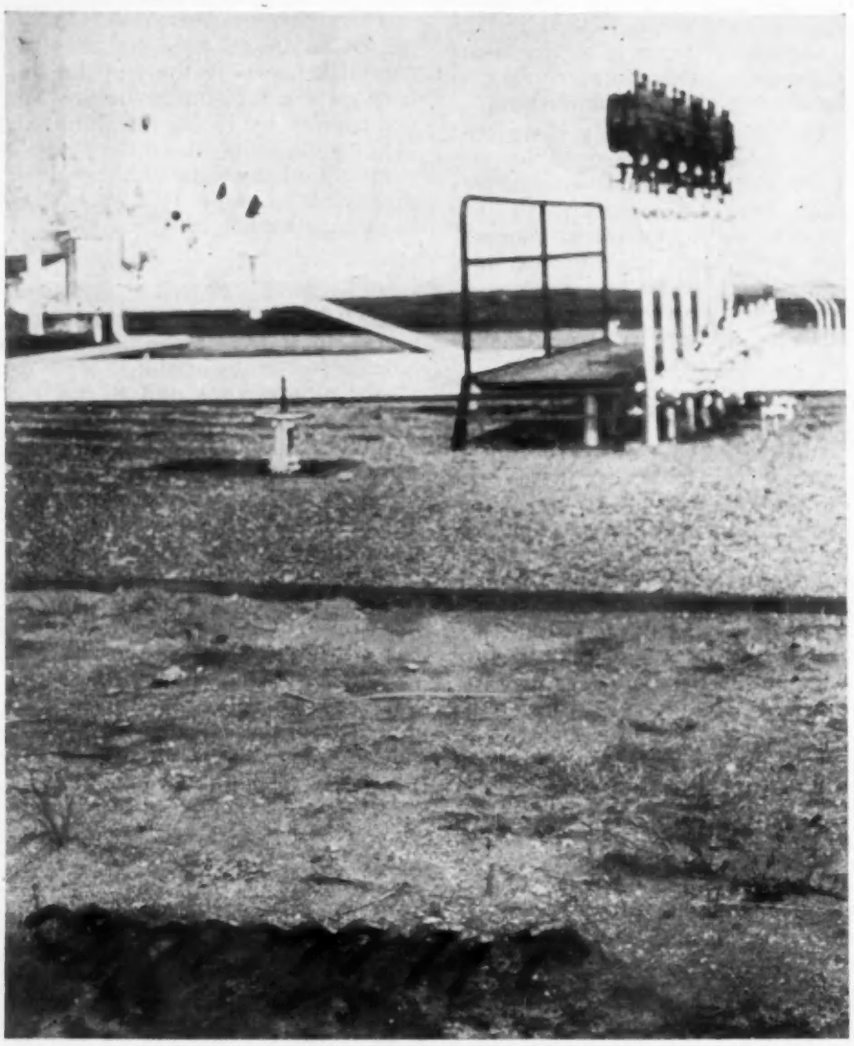
1. GOOD LEASEKEEPING

Extended Drain Lines Protect Meter Bank

ONE of the spots most likely to become an eye-sore on an otherwise neat and well-painted trap and meter setting is the ground and pipe fittings adjacent to the bank of orifice meters. When meter lines are blown out or drained, it is difficult to prevent oil spray from settling.

One company solved this problem by extending each of these drain lines under ground to the edge of the location, where they are brought to the surface. The ends were uniformly bent so as to cause the oil and spray to blow along close to the ground, thus permitting little of the oil to get into the air.

While somewhat more pipe was involved, it is almost 100 percent salvagable.



By extending the blow-down lines from a bank of orifice meters to the edge of the cleared section, spray released when clearing lines is kept from fouling meters and lease is kept sightly.

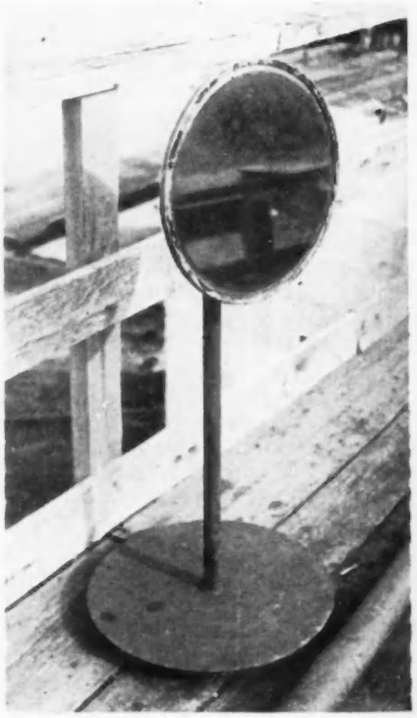
2. SAFETY

Non-Glare Mirror Aids Service Rig Control

ADDING an additional margin of safety to the well pulling work, as well as speeding up operations, the production gang of a large California company has found a large round mirror to be a valuable adjunct to their regular well-servicing equipment.

Approximately 18 inches in diameter, the plate glass mirror, of the non-glare type, was mounted on a weighted pedestal.

The mirror is spotted opposite the hoist man and in such a position that he can watch the men out on the walk where tubing or other heavy material is being brought in with the catline. Through use of the mirror, the hoist man—who in many instances must also operate the cathead—can tell within a few seconds when the load is ready to be lifted, and is not necessarily dependent entirely on getting his cues from signals.



By setting this unit so as to show catline operations, work along walk is speeded with safety to crew.

THE PRODUCTION MAN

3. BATTERIES

Dual Starting Duty From Central Unit

Paired leads from this battery may reach starting motor on either of two engine units, halving cost.

MAKING a single starting battery serve for two adjacent plants was easily and inexpensively accomplished by one company. On the outside of the one building that housed a multiple engine, centrally located pumping power plant, a small wooden enclosure was built in which the battery was placed.

To start the engines in this building as well as in the adjacent gas-engine driven electric power plant building, two long, rubber-covered heavy gauge cables were brought out from the battery box.

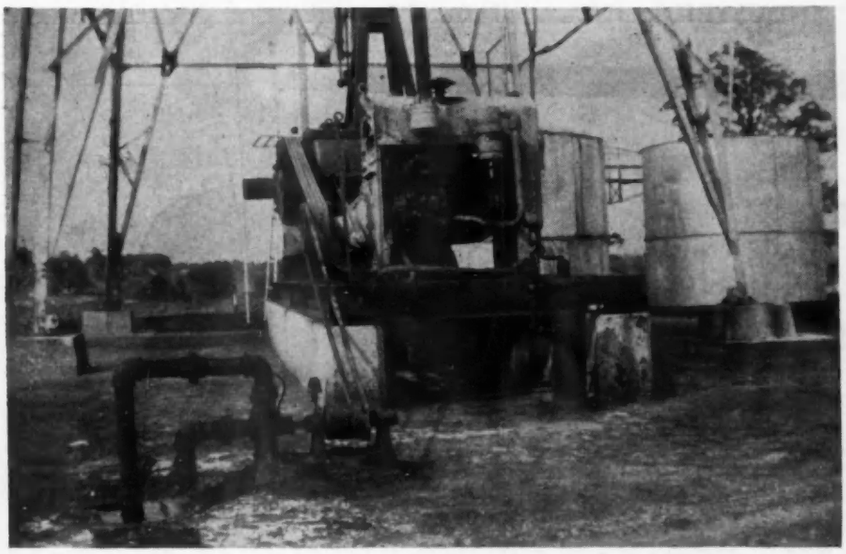
Aside from the saving through not having to keep a battery in each plant, or at best, wheel a single one on a dolly from one building to another, it is much more accessible for removal for recharging.

4. PUMPING

Production Pumped as Well Produces

ON LEASES where it is necessary to treat oil in order to break down emulsions, some means must be provided to circulate tank bottoms back through the treating system. Since this is necessary only a few hours a month, common practice is to set a steam pump and use gas pressure from the residue line.

One operator in East Texas is cooperating by using one of the belts on his pumping unit nearest the tank battery to run a centrifugal pump. During the short times that the pump runs the additional wear on the belts of the pumping unit is negligible. The shift of the belt from the unit to the pump can be made in a few seconds and this hookup is found to be more convenient, cleaner, and safer, due to lessened fire hazard.



Using a driving pulley with one more groove than required for well pumping provides power for centrifugal pump which transfers lease tank storage at same time as well is produced.

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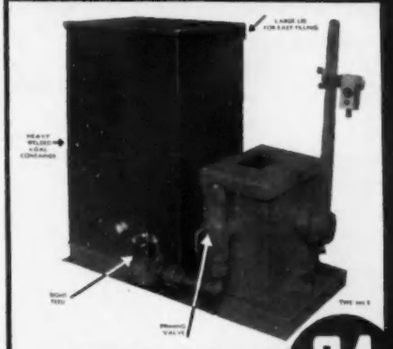

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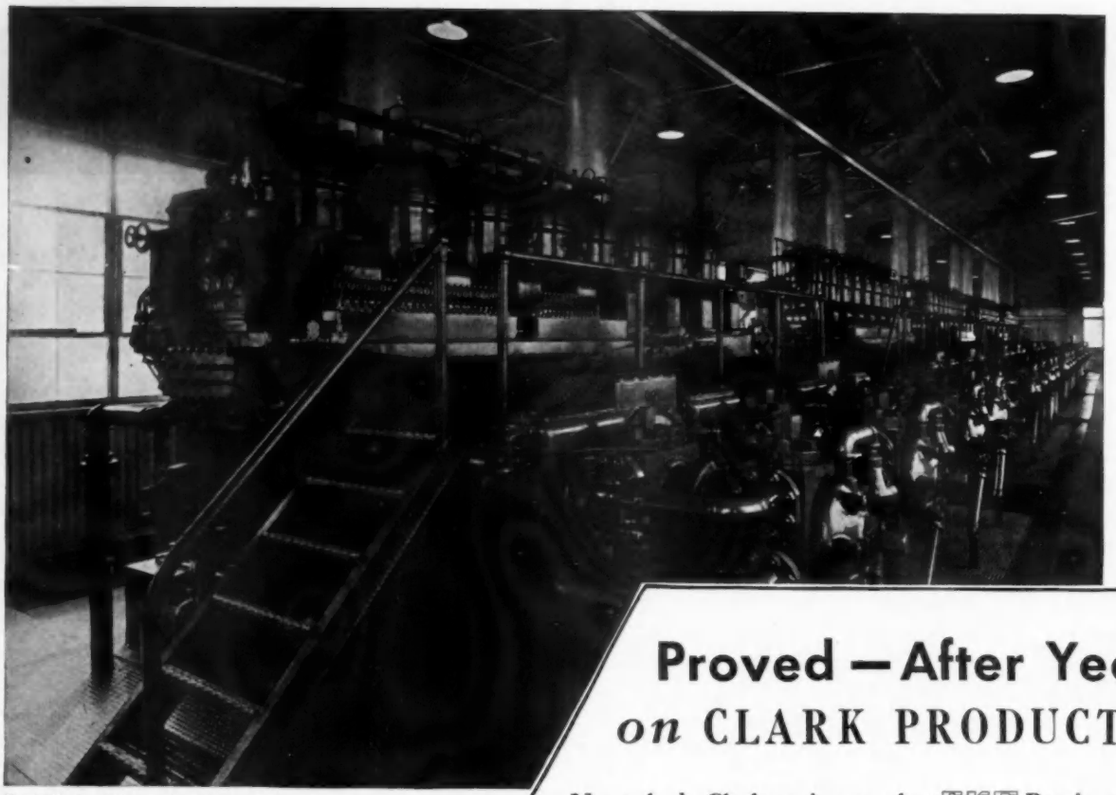

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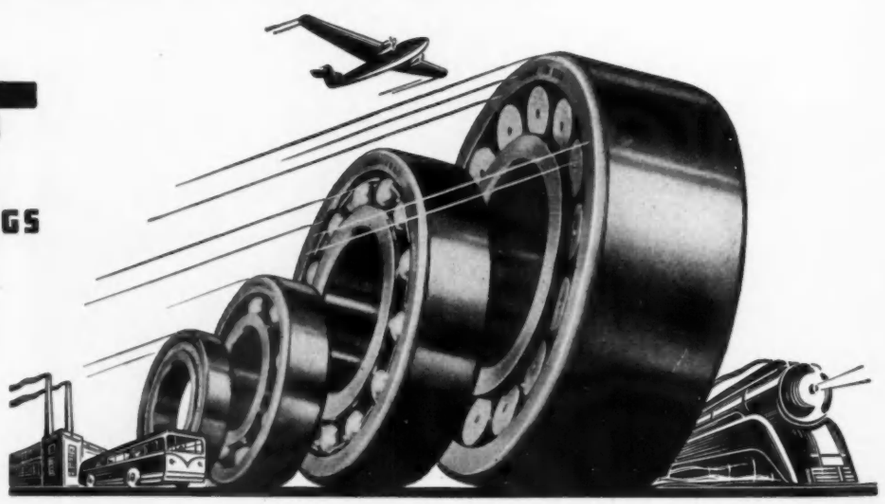

June Crude Output Increased to 3,636,300 Barrels; District Three Given Biggest Boost

June production of all petroleum liquids will be approximately 10 percent under the output of crude oil alone in the same month last year, under recommendations made by OPC May 25 for a daily output of 3,636,300 barrels.

The June allowable would be 160,000 barrels above the recommendation for May and 310,000 barrels below the June, 1941, production of 3,947,300 barrels of crude alone.

OPC pointed out that an increase of almost 10 percent is made in the allowable for District 3, reflecting "continued additions to oil movements by barge and overland transportation facilities," and disclosed that the Texas Railroad Commission has been requested to allocate the production for that state—increased 108,600 barrels over the May recommendation—among the fields so as to utilize to capacity all available pipeline facilities to the north and east.

"Meanwhile," it was added, "everything possible is being done to provide additional outlets for the oil produced in the important producing areas constituting Coordination District 3."

California production is increased nearly 20,000 barrels a day to satisfy the increasing demand of the entire Pacific area on the state's production, principally Navy requirements.

A temporary increase of slightly over 20,000 barrels for Kansas was explained as provided to assure capacity operation of expanded pipe-line facilities which will become available early in June. The increase, it was said, particularly offsets the continuing decline in productive capacity of fields in Illinois and Oklahoma.

All three of the Eastern States were given increases which will raise production in District 1 from 82,400 to 83,700 barrels a day. In District 2, reductions were provided for Illinois, Nebraska, Ohio and Oklahoma, but the total for the district is raised from 1,132,900 to 1,148,500 barrels. All of the District 3 states were increased with a total for the area raised from 1,454,000 to 1,584,000 barrels, but all three of the District 4 states drew decreases which brought the total down from 131,400 to 127,200 barrels. California production is raised from 673,800 to 691,900 barrels.

OPC recommendation for each state, compared with May and actual crude output in June, 1941, is shown in an accompanying table.

Bureau Reviews Situation

Gasoline rationing and automobile and tire restrictions have resulted in depressing gasoline demand to 11 percent under that of a year ago, the Bureau of Mines reported May 28 in forecasting demand for domestic crude in June will call for 3,580,000 barrels a day.

"As the result of the various measures to conserve rubber and to ration gasoline consumption, the total demand for gasoline in the second quarter of 1942 will probably show a decline of about 11 percent as compared with last year," the bureau said. "Available data for April and May indicate a demand materially below previous expectations and the bureau's forecast for June is some 12,000,000 barrels below the total demand that normally might have been anticipated.

"The total demand for domestic crude petroleum in the first quarter of 1942 showed an increase of about 5.4 percent over last year, while a probable decline of 6 percent below last year is indicated by current trends for the second quarter. Continuance of the depressed rate of refinery operations seems probable during June, pending further readjustments in yields, prices and market distribution of the various refined products."

The bureau's estimate of crude demand, which is slightly less than the 3,636,300 barrels a day recommended by OPC for all petroleum liquids, is 149,000 barrels under the demand estimated for May and 367,300 barrels less than actual demand in June, 1941.

The report placed daily average crude production for the four weeks ended May 2 at 3,501,000 barrels and total runs to stills at 3,503,000 barrels, and said that during the period stocks of domestic crude decreased at the rate of 97,000 barrels a day, indicating a demand for domestic crude of 3,598,000 barrels.

"Data for the first quarter of 1942, as compared to the same period in 1941, show that runs to stills increased

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OIL IS AMMUNITION ★ KEEP 'EM PRODUCING

OPC Increases June Allocation 161,800 Barrels Over May

DISTRICT AND STATE	June, 1942 Total Petroleum Liquids	May, 1942 Total Petroleum Liquids	June, 1941 Actual Production (Crude Oil)
District 1:			
New York	14,900	14,800	14,500
Pennsylvania	51,000	50,500	42,800
West Virginia	17,800	17,100	11,800
Total	83,700	82,400	69,100
District 2:			
Illinois	320,800	329,200	388,700
Indiana	18,900	17,900	13,900
Kansas	281,900	259,300	332,800
Kentucky	13,000	12,800	15,400
Michigan	63,100	60,500	41,900
Nebraska	4,100	4,500	4,500
Ohio	10,100	10,200	9,300
Oklahoma	436,600	438,500	502,600
Total	1,148,500	1,132,900	1,209,100
District 3:			
Arkansas	75,300	74,000	78,800
Louisiana	311,300	298,600	308,500
Mississippi	49,200	48,100	14,700
New Mexico	80,600	73,300	99,000
Texas	1,068,600	960,000	1,355,700
Total	1,584,000	1,454,000	1,856,700
District 4:			
Colorado	7,600	7,900	4,700
Montana	23,400	25,200	18,800
Wyoming	96,200	98,300	90,100
Total	127,200	131,400	113,600
District 5:			
California	691,900	673,800	698,600
Other	.....	.....	200
Total United States	3,636,300	3,474,500	3,947,300

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about 4 percent and that total demand for motor fuel was about 6 percent greater, while the total demand for light and heavy fuel oils showed a gain of about 12 percent," the bureau commented. "The yields from crude during the first quarter of 1942 were 43.1 percent for gasoline and 25.3 percent for residual fuel and were almost identical with the yields in the same period of 1941. The relatively greater demand for fuel oils resulted in an abnormally heavy draft on stocks."

Total demand for motor fuel for June is placed at 52,600,000 barrels, which is 7,022,000 barrels, or 12 percent, less than actual demand in June, 1941, entirely a reflection of the gasoline-rubber situation.

Stocks of finished and unfinished gasoline on March 31 were 106,733,000 barrels, the report showed. American Petroleum Institute statistics indicate a decline of about 3,700,000 barrels during April, which would place them at approximately 103,000,000 barrels as of April 30, and the bureau estimated a further decrease of 5,200,000 barrels in finished stocks in June.

Benzol used for motor fuel and direct sales of natural gasoline were estimated at 1,700,000 barrels, making an indicated refinery production of 45,700,000 barrels, which the bureau distributed among the several refining districts as follows: East Coast, Inland Texas, Texas Gulf Coast, Louisiana Gulf Coast and Inland Louisiana - Arkansas, 19,140,000 barrels; Appalachian, 2,360,000 barrels; Indiana, Illinois, Kentucky, etc., 10,570,000 barrels; Oklahoma, 2,700,000 barrels; Kansas, 2,630,000 barrels; Rocky Mountain, 1,450,000 barrels; California, 6,850,000 barrels.

Natural gasoline to be blended at refineries was estimated at 3,580,000 barrels. The yield of gasoline from crude was placed at 40 percent, anticipating adjustments in refinery operations to meet the increasing need for heavy fuel oil and the dwindling demand for gasoline; that yield, applied to the straight-run and cracked production of 42,120,000 barrels, gives total crude runs of 105,300,000 barrels, or 3,510,000 barrels a day.

Crude for export and to be used as fuel, and losses, was estimated at 4,300,000 barrels, giving an estimated demand for domestic crude of 107,400,000 barrels for the month, or 3,580,000 barrels daily.

Texas Again Ignores OPC Recommendation

The Texas Railroad Commission has announced it will fix a daily average allowable of 1,200,000 barrels for the first 15 days of June, with five shutdown days during the period. This announcement was made after a statewide hearing at which purchasers indicated that they would need 1,400,000 barrels daily during the month. These nominations exceeded the 1,068,600 barrels recommended by OPC by 331,400 barrels daily. The commission, it appeared, divided the difference for the first half of June, setting its allowable 131,400 barrels above the Coordinator's estimate.

As the order was announced, Commissioner Jerry Sadler said OPC Director of Production Robert E. Allen had invited him to Washington to discuss the data presented at the hearing, and to

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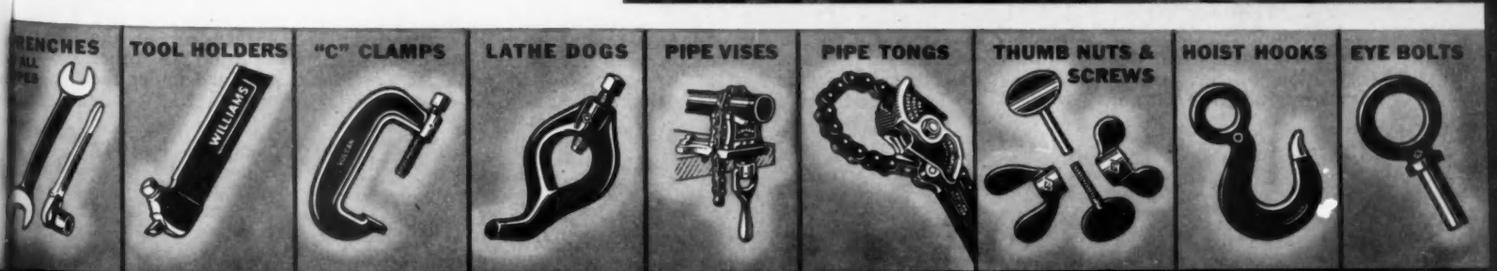
for over half a century for
P-FORGINGS and DROP-FORGED TOOLS



discuss the condensate problem. Sadler said he planned to go at once.

The formal order fixing details of the allowable was to be issued at noon on May 30. Sadler pointed out that with a 15-day order, and 5 shut-down days, the commission would have time to study the affect of the order issued for the latter part of May, and make any adjustments necessary after the conference with the coordinator was over.

At the hearing the commission inquired especially into pipe-line proration and little was indicated. Aransas field operators complained that Atlantic Pipe Line Company was taking only 15 percent of the allowable and asked that a cut be made so that this amount would be assigned to the field as a whole. Commissioner Olin Culberson recommended immediately that this be done and an order reduced the allowable from 38 to 6 barrels per well immediately.

The nominations filed prior to the hearing were 1,393,168 barrels, a decline of 170,119 barrels from the amount nominated for May. Several adjustments were made at the hearing by operators whose conditions had changed, but these had no material affect on the total.

Kansas at Peak

The June oil allowable for Kansas has been set at 281,900 barrels daily, in agreement with OPC recommendation. The figure, representing an increase of 22,600 barrels, is the highest allowable ever set by the commission.

Pipe-line facilities that a year ago would have prohibited this rate of production have since been expanded so that sufficient added capacity has been obtained to exceed last year's runs by 55,000 barrels daily.

Oklahoma's allowable has been set to agree with OPC.

Northeast Oklahoma Protests M-68 Order

Operators of the northeast Oklahoma shallow area and the adjacent stripper sections met recently in Coweta to discuss M-68 as it applies to their type of operation and also to propose changes vital to their interests.

After analysis and from information offered by the more than 100 delegates, M-68 was declared unfeasible for development of properties in Creek, Wagoner, Muskogee, Mayes, Craig, Adair, Sequoyah, Cherokee, Okmulgee and possibly other counties of the state wherein the same general operating conditions obtain. In this section of Oklahoma a number of sands produce from depths seldom exceeding 1800 feet. Production is not great compared with other areas but the crude is desirable for lubricants. Pressures are low, this localizing formation drainage.

Little new material is used either in the drilling or the producing of these wells. Casing and tubing are made up of pipe unfit for use with high pressures.

The operators contend that present rules pertaining to general development should not be applicable to this area. They offer 1 to 40 spacing for gas and 1 to 10 for oil as a logical development. A committee, headed by Mose DeGraffenreid, deputy state conservation officer, has been named to further study the matter.

OIL FIELD SCRAP AND SALVAGE

Scrap Scrapings

Were it not for our American characteristic of assuming that the job is done at the first sign of improvement, there might be encouragement in word from the steel industry that the scrap situation considering high rate of usage —is favorable.

Further investigation brings out the cheering fact that no furnaces were shut down for lack of scrap during the past week. But, due to the excessive wear on furnace linings incurred in working up the miscellaneous and off-grade scrap which alone has been available to keep tonnages up, more than the seasonal number of furnaces have been taken off for relining and other maintenance.

Those behind scrap campaigns need to maintain their efforts, and contributing industries such as our own oil industry need to redouble their efforts to bring in and make available the piles of non-recurring scrap still present on leases, in warehouse yards, and even buried around operations. This non-recurring or accumulated scrap is still of vital importance in maintaining peak steel production pending further increase in volume of processing scrap being made available from munition plants, shipyards and other war industries.

As oil production lags, the industry has more time in which to canvass its holdings for every available ton, every unused pound, of iron and steel scrap, and to collect it for furthering the war effort. Which, in turn, will the sooner release more steel for oil needs, and thus aid in restoring oil quotas to former levels.

Rubber Reclaiming Needs Intensive Salvage Effort

The serious rubber situation and the urgent need for speed in creating large-scale synthetic rubber capacity, at the same time conserving every available pound of rubber, are major points made by John L. Collyer, president of The B. F. Goodrich Company, Akron, Ohio, in his testimony to the special United States Senate Committee investigating the national defense program.

"We must rush the building of synthetic plants without losing a moment," stated Collyer. "Synthetic rubber production estimates have been made for 1943 and 1944, but these might be upset by shortage of structural materials, transportation delays and shortage of experienced engineering personnel.

"Equally important, however, is for us to understand that we have two other equally big jobs. One is the collection of scrap rubber so that we can fully utilize facilities for making reclaimed rubber, and the other, greater conservation of rubber.

"The scrap rubber situation is critical and calls for prompt and effective action. In the months and years that preceded Pearl Harbor it was not possible for anyone to appreciate fully the vital necessity of building synthetic rubber producing capacity on anything like the scale now scheduled. But today no one can fail to see the danger of failing to take the necessary action with regard to scrap rubber.

"Reclaimed rubber is basic in all planning to bridge the gap until synthetic rubber begins to come in, and even thereafter. In straining every fibre to make available materials to replace our lost regular supplies of crude rubber, the country has assumed that reclaiming plants would operate at capacity, and that insofar as may be practical, this capacity would be enlarged. Existing facilities can make 350,000 tons of reclaim a year if the scrap comes in.

"But without a steady flow of scrap rubber these plants cannot operate at all, or only at sharply reduced rates. During the first three months of this year, scrap rubber came in at a rate of 50 percent below the figure needed to operate at capacity.

"It will take an all-out continuing nation-wide 'rubber round-up' to bring in worn and discarded rubber products that are desperately needed.

"I cannot emphasize too strongly this imperative need to comb every county in this country for scrap rubber to help meet the rubber crisis. We must have reclaimed rubber to use in stretching our crude rubber stockpile for manufacturing war materials and vital civilian products. This part of the program must not lag. But it is lagging today, and that problem must be solved without the loss of another day.

"The other big job we have to do is to intensify our program of rubber conservation.

"In estimating future rubber consumption no provision has been made for the removal of present restrictions on tires for civilian use. Eventually products made of rubber must be replaced or vital services will break down. Workers must have transportation to and from distant war production jobs. A way must be found to keep America's automobiles and trucks—key factors in war or peace economy—on the road.

"This is the reason that we must press for further action which will make rubber available for the basic needs of the American people. Only one course is open. We need a much more intensive program of rubber conservation. This can be accomplished by the wholehearted cooperation of the government, industry, the Army and Navy, and private owners of automotive equipment."

In discussing synthetic rubber in the manufacture of tires, Collyer said his company had successfully tested passenger car tires in which synthetic rubber replaced all of the natural rubber except for approximately one ounce in insulation around the bead wire.

Licensing Order Extended

Provisions of the order licensing dealers to sell scrap, waste and salvage materials are specifically made applicable to dealers in rags and waste paper in orders issued by Price Administrator Leon Henderson.

The amendment to the price schedule on old rags also broadens the definition of old rags to include No. 1 manila rope.

Violations of any of the provisions of specific price schedules or regulations may result in the suspension of the dealer's license, in addition to other penalties previously provided under the Emergency Price Control Act.

Markets • Statistics • Prices

East Coast Consumption Little Changed by Rationing

Except on the Gulf Coast, where refiners report continued inactivity, the markets remain generally firm. Although prices have been changing relatively little, OPA has authorized small increases in scattered instances; but in other cases, reductions have been ordered to keep quotations in conformity with the agency's orders.

OPA meanwhile is emphasizing that where price ceilings do not permit adequate profit, the first solution is to make every effort to cut operating costs by economies and efficiencies.

The posted price of crude oil at the wells in the East Texas field is $1.25 a barrel, but OPA last week approved a delivered price of $1.30 on oil sold by Houston Oil Company to Shell Oil Company; although OPA previously had denied request for permission to charge 5 cents a barrel gathering charge instead of 2½ cents as it did prior to October 8, 1941.

In compliance with OPA demands, leading independent marketing companies on May 25 reduced tank wagon prices of Bunker C and No. 6 fuel oil at New York from 5.12 to 4.88 cents a gallon. OPA insisted that latter price was top that could be charged under its Order 88 putting ceiling at last substantial sale in 60 days ended October 15, 1941, although companies had set their prices higher on contention they could do so without violating the order.

On the East Coast all available material was being absorbed with prices firmly up to ceilings. The effect of recently instituted rationing of gasoline had not yet become apparent at the middle of the past week, although some suppliers said that the restrictions had not slowed down takings but on the contrary had been accompanied in some instances by increased demand. Heating oil and kerosene were in firm demand for storage against next fall's requirements, and deliveries to jobbers and distributors were as great as permitted under government regulations. Heavy fuel oil continued short of requirements, and no relief was in prospect.

On the Gulf Coast, the cargo market again was reported exceptionally quiet, with no open market sales or firm inquiries, as boats remained unavailable.

In the Middle West, refiners continued to experience difficulty in manufacturing all the gasoline and fuel oils that they could sell, as the shortage in the East provided a steady outlet for oils not used within the region.

Demand for all refined products was reported steady in the Oklahoma-Kansas district, with heavy fuel oil particularly sought, to help relieve the East Coast shortage. Refiners who have been supplying all production to railroads have been requested to allocate part of their output for shipment to the East.

On the West Coast, some alleviation of the scarcity of supplies for use in the Northwestern states was indicated in the action of OPA in deciding not to apply its emergency gasoline rationing program on June 1, as originally planned. Oregon and Washington curtailment will be left at 66.6 percent instead of being reduced to 50 percent as in the East, due to an improved inventory situation.

Refinery Runs at Low Point for Year

Shrinkage of the oil industry's volume of business was reflected in statistics of the week ended May 23, which recorded a new low for the year in refinery runs. However, the figures hinted that efforts to avoid serious shortage on the East Coast were fairly successful, as there were substantial additions of both light and heavy fuel oils to storage within the week in the combined Eastern consuming and Southwestern supplying districts, although figures for the East Coast individually were not published under prevailing censorship. The addition of heavy fuel oil amounted to 422,000 barrels and that of light fuel oil 249,000.

The East and the Southwest together showed at the same time a withdrawal of 775,000 barrels from gasoline storage, but that was a seasonal trend.

For the combined districts, which include the East Coast, Texas-Louisiana Gulf Coast, North Louisiana, Arkansas, and Inland Texas, crude runs to stills were 54,000 barrels a day lower than in the previous week at 1,457,000 daily, which represented 61.1 percent of rated capacity.

United States refinery runs averaged 3,393,000 barrels daily, 529,000 barrels (13.4 percent) under the runs of 3,922,000 daily a year previously.

Aside from the curtailment of plants in the Eastern-Southwestern districts, the only important change in operating rates was the cut-back of 31,000 barrels in the Illinois-Indiana district, apparently in reflection of declining crude production.

Gasoline stocks in the United States were reduced in the May 23 week from 99,134,000 to 97,034,000 barrels, and the latter quantity was about 3,000,000 barrels, or 3 percent, above that of 94,141,000 barrels on hand at the corresponding time last year. Withdrawals of the week included 304,000 barrels in the Appalachian district, 672,000 in Illinois-Indiana-Kentucky, and 453,000 in Oklahoma-Kansas-Missouri, besides the 701,000 in the East-Southwest.

Stocks of residual fuel oil in the United States were increased 616,000 barrels, from 78,826,000 to 79,442,000. The additions were largely in the East Coast-Southwest and California districts, the former showing a 422,000-barrel increase and the latter 225,000 barrels. The present stocks are 13.7 percent smaller than a year ago.

Stocks of gas oil and distillate fuel were increased between May 16 and May 23 from 30,206,000 to 30,614,000 barrels, a 408,000-barrel gain. There was an 84,000-barrel withdrawal in the Middle West, but other districts showed increases. Oklahoma-Kansas added 108,000 barrels, and California stored 98,000. Stocks of the light fuel oils now are materially under a year ago, the U. S. total of 30,614,000 barrels being 4,292,000 (or 12.2 percent) short of that of 34,906,000 barrels on hand a year ago.

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels)

STATE OR DISTRICT	[1]OPC Allocation in May	PRODUCTION IN WEEK ENDED May 23	May 30
Arkansas	74,000	71,200	70,800
California	673,800	638,400	598,600
Long Beach		36,700	36,300
Midway-Sunset		55,300	53,400
Kettleman Hills		40,900	35,000
Wilmington		88,900	84,200
Rest of State		416,600	389,700
Colorado	7,900	7,500	7,650
Illinois	329,200	293,150	288,100
Salem		47,250	46,800
Louden		49,300	50,200
Other New Pools		184,500	179,500
Old Pools		12,100	11,600
Indiana	17,900	19,900	21,950
Kansas	259,300	256,250	256,500
Kentucky	12,800	12,250	12,450
Louisiana	298,600	303,400	293,800
North Louisiana		83,900	86,000
South Louisiana		219,500	207,800
Michigan	60,500	66,750	62,200
Mississippi	48,100	85,850	83,900
Missouri		130	130
Montana	25,200	21,550	22,250
Nebraska	4,500	3,900	3,950
New Mexico	73,300	55,200	55,400
New York	14,800	14,150	12,750
Ohio	10,200	9,600	9,700
Oklahoma	438,500	3[illegible]6,250	383,250
Oklahoma City		75,200	73,950
Seminole Area		98,750	97,300
Rest of State		212,300	212,000
Pennsylvania	50,500	53,000	53,200
Tennessee		30	30
Texas	[2]960,000	1,206,200	1,550,900
Upper Gulf Coast		242,400	324,500
East Texas Field		371,200	498,700
Rest of Eastern Texas		87,300	99,600
Lower Gulf Coast		61,500	100,800
Southwest Texas		35,800	47,500
South Central Texas		16,200	17,200
West Texas		157,100	208,900
North Texas		146,300	156,300
Panhandle		88,400	97,400
Utah		15	15
West Virginia	17,100	10,400	10,050
Wyoming	98,300	89,900	95,800
Total United States	3,474,500	3,604,975	3,893,375

[1] Production rates recommended for states by Office of Petroleum Coordinator, on basis of Bureau of Mines forecast of the nation's daily average requirements for domestic crude during month. State conservation authorities except Texas Railroad Commission have prescribed allowables calculated to hold actual production within OPC allocations. (Details on state allowables published in The Oil Weekly of May 11, 1942, page 46 and May 18, 1942, page 49.)

[2] Actual production of crude oil and other petroleum liquids in Texas expected to average 1,402,038 barrels daily in last 15 days of May, under railroad commission order. All Texas fields were ordered closed down May 16, 17, and 18. (Details on order were published in May 18, 1942, issue, page 49.)

Vigorously Protest Gasoline Rationing

Opposition to extension of gasoline rationing in District 2 as needless and injurious was expressed in Chicago last week by Frank Phillips, chairman of the District 2 general advisory committee to OPC and chairman of Phillips Petroleum Company. "Surveys made by the committee," Phillips said, "disclose that adequate transportation facilities are available to transport gasoline and light petroleum products from refineries, water and pipe-line terminals to retail facilities in District 2, comprising the Middle Western states,

Oklahoma and Kansas, without use of tank cars, and complete conversion of tank-truck hauling has been or will be fully accomplished almost immediately. Consumer rationing thus will not add to the number of tank cars available for movement into the East."

Phillips said the committee considers that railroad and bus transportation cannot meet the needs of the agricultural western states, where distances are so large that continued use of automobiles is essential to keep food supplies moving to consumption centers.

Phillips said gasoline rationing will either result in reduced refinery operations and curtailment of essential war materials or bring about wasteful disposal of surplus gasoline. He said the District 2 committee has recommended that Petroleum Coordinator Ickes call attention of all governmental agencies concerned to the facts and views reached by the committee.

At a meeting in Tulsa called by P. H. Bohart, chairman of the oil activities committee of Tulsa Chamber of Commerce, a decision was reached to formally request a hearing on the subject prior to enactment of the order, and that N. R. Graham, president of the Tulsa Chamber of Commerce, be instructed to personally ask such a hearing. The resolution contains the thought that if the facts developed in the course of such a hearing establish that such nationwide rationing is necessary and is in furtherance of the war effort then whole-hearted support of any proper and necessary rationing will be given.

A similar position has been taken by Governor Leon C. Phillips of Oklahoma who has protested the nation-wide ration idea and has requested Donald Nelson to call a conference of governors of oil-producing states before issuance of final order.

Governor Coke Stevenson of Texas urged that there be no gasoline rationing in Texas.

Sharp Texas Gain Boosts U. S. Crude Production

United States crude oil production shot upward in the week ended May 30 to 3,893,375 barrels daily, a rate reminiscent of output early this year before the submarine campaign against American oil shipping. The output was nearly 300,000 barrels a day greater than in the previous week and over 400,000 in excess of the petroleum coordinator's recommendation for daily average production in May.

The sharp increase was accounted for almost wholly by a temporary loosening of the restrictions on Texas fields, as that state for the first time in a long period produced every day in the week, whereas frequent 24-hour shutdowns have been the rule heretofore. Texas output therefore averaged 1,550,900 barrels daily in the week ended May 30, against 1,206,200 daily in the previous week, when fields were closed in during two out of the seven days.

However, Texas will revert to shutdowns under proration plans for the first half of June when fields will be closed five out of the 15 days of the half-month.

Concentrate on Fewer Texas Pipe Line Outlet Projects

Pipe line committee of District 3 in session at Houston Wednesday and Thursday abandoned all crude and products projects excepting the conversion of both Gulf and Texas Pipe Line Companies eight-inch lines from Port Arthur to Shreveport into products carriers, then building of single 10-inch with undetermined number of 8-inch loops from Shreveport area to Helena, Arkansas. Ten-inch pipe and portion of station equipment to be had through salvaging of Gulf-Magnolia 250-mile 10-inch from Panhandle to Ranger, as this line only handled average 4600 barrels daily in April for Magnolia and arrangements are complete for disposal of its Panhandle oil elsewhere. The Port Arthur to Helena carrier to have a rated capacity of 55,000 barrels daily, with Gulf and Magnolia the sponsors and biggest users, while space also to be allotted The Texas Company, Arkansas Fuel Oil Company, Premier Oil Refining Company and Root Refining Company. Expect to have unit in service within four months.

Next project virtually cinched involves purchase of Illinois Pipe Line Company's 137-mile 8-inch from Yates field to Del Rio and the 130 miles 10-inch from Del Rio to Lytle, near San Antonio, where connection is made with Humble system. It is understood that Shell and Humble may purchase this unit intact and relay all the 10-inch and portion of 8-inch in loops to connect Beaumont-Port Arthur refineries with Baton Rouge terminal of Plantation line.

Third most likely project is thought to be boosting of Plantation capacity from 60,000 to 90,000 barrels daily by addition of more stations.

New Mexico-Arizona Gas Line Not to Handle Oil

Reports that a gas line from West Texas to a point in Arizona (See THE OIL WEEKLY, May 18, page 56) might be converted into an oil line to move crude or fuel oil for use on the West Coast are declared by owners of the line to be without foundation.

Sinclair Ready to Start Shipments From Zenezuela

Venezuelan Petroleum Company, which is developing the Santa Barbara field in eastern Venezuela, is ready to load crude oil on tankers at the company's new pipe line terminal at Puerta la Cruz, said President H. F. Sinclair of Consolidated Oil Corporation, the parent company, a few days ago. Sinclair said it is hoped that tanker capacity for 30,000 barrels daily can be obtained.

Venezuelan Petroleum Company recently completed a 100-mile, 10-inch pipe line to carry oil from the new field to the Caribbean terminal. Sinclair said the company had drilled 1 dry hole out of about 30 wells in the field.

Bolivian Oil Independence Predicated on U. S. Aid

Financial aid from the American government to make Bolivia self-sufficient in petroleum by December 31, 1942, is part of a plan outlined last week at La Paz by Merwin L. Bohan, head of the United States economic mission to Bolivia. Bohan is expected soon to report to Washington on his five-month study of Bolivian financial needs.

Bohan declared the economic program for Bolivia, details of which are not yet available, will be managed by a private concern known as the Bolivian Development Corporation controlled by the Bolivian government and the Export-Import Bank. Last February, the bank was reported as preparing to make a loan to the government-owned Bolivian oil industry. The industry has recently been undergoing a reorganization with the assistance of American oil men.

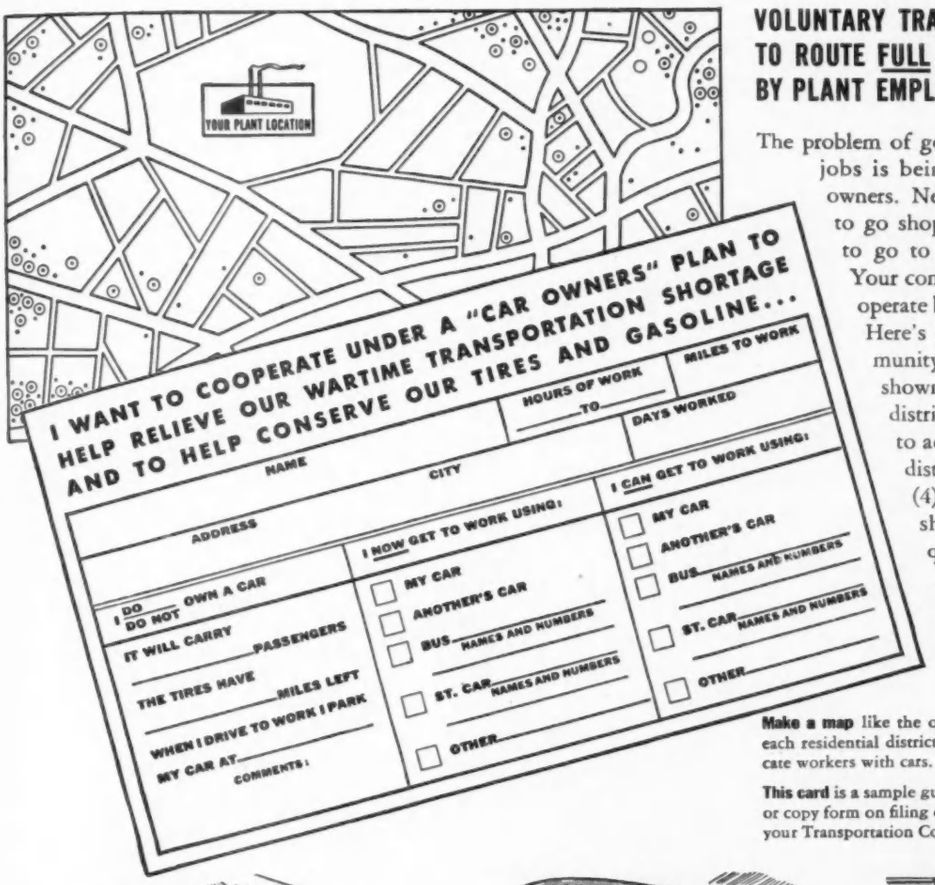
Trends of Operations and Changes in Stocks

Figures on crude stocks are from Bureau of Mines weekly reports; all others from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines basis.

ITEM	Crude Oil Prod.		Runs to Stills		Crude Stocks		Gasoline Stocks		Gas Oil & Distillate Stocks		Residual Fuel Oil Stocks	
	Bbls. Day (Add 000)	Week Ended	Bbls. Day (Add 000)	Week Ended	Bbls. (Add 000)	Week Ended	Bbls. (Add 000)	Week Ended	Bbls. (Add 000)	Week Ended	Bbls. (Add 000)	Week Ended
Highs:												
1939	3,910	8- 5	3,650	10-21	278,607	5-26	87,769	4-22	39,562	10-28	116,237	8-26
1940	3,890	3-16	3,690	6-22	265,865	8-31	102,817	4-20	49,051	10-19	109,135	9-14
1941	4,337	11-22	[4]4,120	10-18	266,187	3-29	99,727	3-29	[5]54,983	11-15	102,448	1- 4
1942	[4]4,337	2- 7	3,961	1- 3	263,208	3-28	[1]107,229	3-14	49,357	1- 3	95,857	1- 3
Lows:												
1939	[3]1,601	8-26	3,125	2-18	[2]229,127	10-21	71,152	10- 7	20,722	4-15	105,397	4- 8
1940	3,335	11-30	3,370	1- 6	237,339	1-27	79,847	11- 9	23,551	4- 6	102,344	2-10
1941	3,364	1-11	3,490	1-18	240,399	11-15	80,870	10- 4	28,381	4-12	92,635	7- 5
1942	3,418	5- 2	3,393	5-23	244,364	1-10	92,987	1- 3	29,240	4-25	78,826	5-16
Trends in 1942 (Week Ended):												
Jan. 3	4,038	.....	3,961	.....	244,440	....	92,987	.....	49,357	.....	95,857	.....
Jan. 31	3,871	.....	3,848	.....	250,740	.....	97,810	.....	40,674	.....	91,189	.....
Feb. 28	4,016	.....	3,675	.....	259,373	.....	105,635	.....	34,547	.....	88,285	.....
Mar. 28	3,820	.....	3,667	.....	263,208	.....	105,624	.....	31,756	.....	83,045	.....
April 25	3,581	.....	3,506	.....	257,073	.....	102,897	.....	29,240	.....	81,107	.....
May 2	3,335	.....	3,441	.....	259,145	.....	101,376	.....	29,638	.....	79,939	.....
May 9	3,544	.....	3,406	.....	255,185	.....	100,650	.....	29,947	.....	80,155	.....
May 16	3,484	.....	3,484	.....	254,202	.....	99,134	.....	30,206	.....	78,826	.....
May 23, 1942	3,599	.....	3,393	.....	.....	.....	97,034	.....	30,614	.....	79,442	.....
May 23, 1941	3,773	.....	3,922	.....	[4]262,645	.....	94,141	.....	34,906	.....	92,092	.....
Change:												
In week	+115	.....	—91	.....	—983	.....	—2,100	.....	+408	.....	+616	.....
In year	—174	.....	—529	.....	—8,443	.....	+2,893	.....	—4,292	.....	—12,650	.....
In year	—4.6%	.....	—13.4%	.....	—3.2%	.....	+3.0%	.....	—12.2%	.....	—13.7%	.....

[1] All time peak. [2] Lowest since April, 1922. [3] Lowest since October, 1922, due to shutdown of six Mid-Continent states. [4] Stocks, May 17, 1941.

MANY LARGE COMPANIES ARE NOW TAKING A CENSUS OF EMPLOYEES' CARS AS PART OF NATION'S PROGRAM TO GET 40,000,000 WORKERS TO THEIR JOBS ON TIME


YOUR PLANT LOCATION
I WANT TO COOPERATE UNDER A "CAR OWNERS" PLAN TO HELP RELIEVE OUR WARTIME TRANSPORTATION SHORTAGE AND TO HELP CONSERVE OUR TIRES AND GASOLINE...
NAME
CITY
HOURS OF WORK
TO
MILES TO WORK
DAYS WORKED
ADDRESS
I DO / DO NOT OWN A CAR
IT WILL CARRY ____ PASSENGERS
THE TIRES HAVE ____ MILES LEFT
WHEN I DRIVE TO WORK I PARK
MY CAR AT
COMMENTS:
I NOW GET TO WORK USING:
MY CAR
ANOTHER'S CAR
BUS NAMES AND NUMBERS
ST. CAR NAMES AND NUMBERS
OTHER
I CAN GET TO WORK USING:
MY CAR
ANOTHER'S CAR
BUS NAMES AND NUMBERS
ST. CAR NAMES AND NUMBERS
OTHER

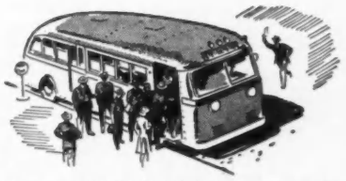
VOLUNTARY TRANSPORTATION COMMITTEES TO ROUTE FULL CARS TO WORK ARE SET UP BY PLANT EMPLOYEES IN EACH COMMUNITY

The problem of getting 40,000,000 workers to their jobs is being taken over by America's car owners. Neighbors are already doubling up to go shopping, to take children to school, to go to work . . . *but not enough of them!* Your company and your employees can cooperate by taking a census of workers' cars. Here's how you can do it in your community: (1) Fill out cards, like the one shown here, (2) Sort cards by residential districts, (3) Select sectional committees to act as traffic control groups for each district to assure equitable use of cars, (4) Route *full* cars to work on every shift. Details can be worked out quickly by you . . . your workers . . . your community. The important thing is to start today to get every last mile of use from our cars, our gas, our tires!

Make a map like the one above, on which to chart the routes for each residential district. Dots indicate workers' homes; circles indicate workers with cars.

This card is a sample guide. Make changes to suit your needs. Reprint or copy form on filing cards for each worker to fill out and turn in to your Transportation Committee.

Trolleys can't do it ALONE. Even with staggered work hours to level off transportation peaks there aren't enough trolleys to take America's millions to work.

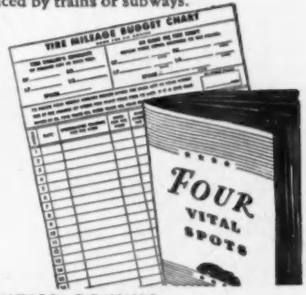


Buses can't do it ALONE. They're already taxed to their full seating capacity. And enough vital steel and rubber can't be spared to build enough new buses.

Trains can't do it ALONE. Although every railroad is cooperating 100%, many of America's mighty war production plants can't be serviced by trains or subways.

HOW TO CONSERVE MECHANICAL RUBBER GOODS
This 48-page book is for managers, engineers and plant operating men. It shows how you can conserve rubber through proper handling, installation and care of rubber conveyor, elevator and transmission belts; all types of industrial hose; packings; linings; rolls; mountings; and other mechanical rubber goods; and electrical wires, cables, and tapes. For free copies, write directly to Mechanical Goods Division, United States Rubber Company.

GET FREE MILEAGE BUDGET CHARTS
and copies of this free 32-page book on tire care from your local U. S. Tire Dealer or write direct to the United States Rubber Company. Hundreds of thousands of these charts and books are already in the hands of American car owners — helping to save tires, gas and oil.



IN AMERICA'S FIGHT FOR LIFE, EVERY TIRE-MILE MUST BE SAVED FOR ESSENTIAL DRIVING

UNITED STATES RUBBER COMPANY

1230 Sixth Avenue • Rockefeller Center • New York

Gravity-Scale Crude Oil Prices in Mid-Continent Fields

Posted in most instances between May 19 and May 21, 1941

GRAVITY	Oklahoma-Kansas: Stanolind, Gulf, Texas, Shelly, Barnsdall, Tidewater, Sinclair, Phillips	Oklahoma-Kansas: Carter, Magnolia, Shell	North Louisiana-Arkansas: [1]Rodessa, etc.	North Louisiana-Arkansas: [2]Champagnolle, etc.	North Louisiana-Arkansas: Bunkie, Eola, Olla (by Standard)	North Louisiana-Arkansas: Lisbon, La. (by Gulf)	North Louisiana-Arkansas: [3]Atlanta, Buckner, etc., Ark.	Inland Texas and New Mexico: North and West Central Texas	Inland Texas and New Mexico: [4]Eastern Texas	Inland Texas and New Mexico: West Texas, [17]Panhandle, New Mexico	South Texas: [5]Refugio Type	South Texas: [6]Mirando Type	Texas Gulf Coast: [7]Gulf Coast	Texas Gulf Coast: [8]Anahuac Type	Texas Gulf Coast: [9]Dickinson Type	Louisiana Gulf Coast: [10]Gulf Coast	Louisiana Gulf Coast: [11]Standard of La.	Louisiana Gulf Coast: [12]Texas Co.	Louisiana Gulf Coast: [13]Texas Co.	Louisiana Gulf Coast: [14]Magnolia Pet. Co.	Louisiana Gulf Coast: [15]Shell Oil Co.	Louisiana Gulf Coast: Jennings (by Gulf)	[16]Rocky Mt. Area (Salt Creek, etc.)
17–17.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....
18–18.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
19–19.9	....	....	....	....	....	....	....	....	$0.80	$0.70	$1.08	$1.03	$1.06	$0.98	$0.93	$1.06	....	....	....	.98	$0.99	....	....
20–20.9	$0.85	$0.75	....	....	....	....	$0.68	$0.81	.82	.72	1.10	1.05	1.08	1.00	.95	1.08	$0.90	....	....	1.00	1.01	....	....
21–21.9	.87	.78	....	....	....	....	.70	.83	.84	.74	1.12	1.07	1.10	1.02	.97	1.10	.92	....	....	1.02	1.03	....	....
22–22.9	.89	.81	....	....	....	....	.72	.85	.86	.76	1.14	1.09	1.12	1.04	.99	1.12	.94	....	....	1.05	1.05	....	....
23–23.9	.91	.84	....	....	....	....	.74	.87	.88	.78	1.16	1.11	1.14	1.06	1.01	1.14	.96	....	....	1.08	1.07	....	....
24–24.9	.93	.87	$0.88	$0.86	$0.98	....	.76	.89	.90	.80	1.18	1.13	1.16	1.08	1.03	1.16	.98	....	....	1.11	1.09	....	....
25–25.9	.95	.90	.90	.88	1.00	....	.78	.91	.97 .92	.82	1.20	1.15	1.18	1.10	1.05	1.18	1.00	....	....	1.14	1.11	....	....
26–26.9	.97	.93	.92	.90	1.02	....	.80	.93	.99	.84	1.22	1.17	1.20	1.12	1.07	1.20	1.02	....	....	1.17	1.13	....	....
27–27.9	.99	.96	.94	.92	1.04	$0.81	.82	.95	1.01	.86	1.24	1.19	1.22	1.14	1.09	1.22	1.04	....	....	1.19	1.15	....	....
28–28.9	1.01	.99	.96	.94	1.06	.83	.84	.97	1.03	.88	1.26	1.21	1.24	1.16	1.11	1.24	1.06	$1.06	....	1.21	1.17	....	$0.96
29–29.9	1.03	1.02	.98	.96	1.08	.85	.86	.99	1.05	.90	1.28	1.23	1.26	1.18	1.13	1.26	1.08	1.08	....	1.23	1.19	....	.98
30–30.9	1.05	1.05	1.00	.98	1.10	.87	.88	1.01	1.07	.92	1.30	1.25	1.28	1.20	1.15	1.28	1.10	1.10	$1.05	1.25	1.21	....	1.00
31–31.9	1.07	1.07	1.02	1.00	1.12	.89	.90	1.03	1.09	.94	1.32	1.27	1.30	1.22	1.17	1.30	1.12	1.12	1.07	1.27	1.23	$1.07	1.02
32–32.9	1.09	1.09	1.04	1.02	1.14	.91	.92	1.05	1.11	.96	1.34	1.29	1.32	1.24	1.19	1.32	1.14	1.14	1.09	1.29	1.25	1.09	1.04
33–33.9	1.11	1.11	1.06	1.04	1.16	.93	.94	1.07	1.13	.98	1.36	1.31	1.34	1.26	1.21	1.34	1.16	1.16	1.11	1.31	1.27	1.11	1.06
34–34.9	1.13	1.13	1.08	1.06	1.18	.95	.96	1.09	1.15	1.00	1.38	1.33	1.36	1.28	1.23	1.36	1.18	1.18	1.13	1.33	1.29	1.13	1.08
35–35.9	1.15	1.15	1.10	1.08	1.20	.97	.98	1.11	1.17	1.02	1.40	1.35	1.38	1.30	1.25	1.38	1.20	1.20	1.15	....	....	1.15	1.10
36–36.9	1.17	1.17	1.12	1.10	1.22	....	1.00	1.13	1.19	1.04	1.42	1.37	1.40	1.32	1.27	1.40	1.22	1.22	1.17	....	....	1.17	1.12
37–37.9	1.19	1.19	1.14	1.12	1.24	....	1.02	1.15	1.21	1.06	1.44	1.39	1.42	1.34	1.29	1.42	1.24	....	1.19	....	....	1.19	1.14
37–38.9	1.21	1.21	1.16	1.14	1.26	....	1.04	1.17	1.23	1.08	1.46	1.41	1.44	1.36	1.31	1.44	1.26	....	1.21	....	....	1.21	1.16
39–39.9	1.23	1.23	1.18	1.16	1.28	....	1.06	1.19	1.25	1.10	1.48	1.43	1.46	1.38	1.33	1.46	1.28	....	1.23	....	....	1.23	1.18
40 & Up	1.25	1.25	1.20	1.18	1.30	....	1.08	1.21	1.27	1.12	1.50	1.45	1.48	1.40	1.35	1.48	1.30	....	1.25	....	....	1.25	1.20

[1] Gulf schedule for Caddo, Homer, Haynesville, Bull Bayou, Crichton, De Soto, El Dorado and Rodessa, Texas. Standard of La. schedule for Cotton Valley, Rodessa, Shreveport (Cross Lake), and Caddo. Magnolia schedule for Haynesville, Cotton Valley, Rodessa, and Miller Co., Ark. Texas Co. schedule for "North Louisiana."

[2] Schedule of Standard of La. for De Soto, Sabine, Fouke, Homer, Miller Co., Sugar Creek. Schedule of Root Petroleum Co. for Nick Springs, Urbana light, Schuler sweet, Rainbow, South Field (El Dorado), and Champagnolle.

[3] Schedule of Standard of La. for Atlanta, Buckner, Magnolia, Schuler: Jones sand, Village. Schedule of Root Petroleum Co. for Schuler: Reynolds lime, and Schuler: Jones sand.

[4] Humble schedule for Anderson, Cherokee, Limestone, and Navarro counties and Navarro Crossing field, except that prices from 80 to 92 cents represent postings only for Hawkins field, Wood County. Rodessa, Texas, prices are same as in Rodessa, La.-Ark.

[5] Schedule for Refugio, E. White Point, Greta, Melon Creek, Midway, Minnie Bock, O'Connor-McFaddin, Plymouth, Saxet, Taft, and Tom O'Connor.

[6] Schedule for Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (N. and S.), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, and Tesoro.

[7] Humble schedule for Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa new, Raccoon Bend, South Thompsons, Sugarland, Thompsons, Webster. Texas Co. schedule for Arriola, Ganado, Hamman, Hillje, Humble, Kubela, Magnet, Manvel, Markham, Mauritz, Old Ocean, Pickett Ridge, Port Neches, Sour Lake, West Columbia, Withers; except that schedule provides $1.36 top, 34 gravity. Pan American Prod. Co. schedule for Hastings and South Houston. Gulf schedule for Spindle Top, Sour Lake, Lovells Lake, West Beaumont, Goose Creek, South Liberty, Big Creek, Blue Ridge, Fannett, Moore, Barbers Hill, Hankamer, Thompsons, Lochridge, Dyersdale, and Hull (old) crudes. Sun schedule for Barbers Hill, Batson old, Cotton Lake, Esperson below 35 gravity, Goose Creek, Greens Lake, Hull below 25, Humble below 35, Nome, North Dayton below 25, Orange, Saratoga, Sour Lake, South Liberty.

[8] Humble schedule for Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull old and new, Pierce Junction, Red Fish Reef, Turtle Bay fields. Sun schedule for Anahuac, Caplen, and Turtle Bay. Gulf schedule for Anahuac, Hull new, Pierce Junction, Orange and Thompsons deep.

[9] Humble schedule for Dickinson, Gillock, Hardin, League City, and Rowan fields. Pan American Prod. Co. schedule for Gillock crude.

[10] Sun Oil Co. schedule for Bayou Blue, Chacahoula, Fausse Pointe, Hackberry (E. and W.), and Vinton. Texas Co. schedule for Bay St. Elaine, Caillou Island, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre for crude ranging in gravity up to 27-27.9; for lighter oils in those fields see Footnote 12. Gulf schedule for Edgerly, Starks, Vinton, E. Hackberry Cameron Meadows, Leesville. Deduct 10 cents for Gulf's prices for Timballer Bay, Grand Bay, Quarantine Bay, and West Bay. Deduct 2 cents for Standard of La. prices for University (Baton Rouge) crude of 30 to 35.9 gravity.

[11] Standard of La. schedule for Bayou Mallet, Choctaw, Darrow, Jeanerette, Lirette, N. Crowley, S. Crowley, Port Barre, Potash, Roanoke, St. Martinville. Deduct 10 cents for Anse La Butte.

[12] Texas Co. schedule for Bateman Lake, Dog Lake, Fausse Point, Horseshoe Bayou, Jefferson Island, Plumb Bob, Vermilion Bay, West Cote Blanche, and Delta Duck Club. Add 8 cents to these prices for Texas Co. postings for 28 or higher gravity at Bay St. Elaine, Caillou Island, Iberia, Lake Pelto, Leesville, Port Barre, and Lake Barre.

[13] Texas Co. schedule for Delta Farms, Golden Meadows, Lake Salvador.

[14] Magnolia schedule for Lockport, Cameron Meadows, West Gueydan.

[15] Shell Oil Co. schedule at Iowa, Black Bayou, White Castle. For Shell's prices at Roanoke and Chalkley fields deduct 5 cents. For Shell's prices at Gibson, South Houma, Hester, and West Lake Verret fields deduct 10 cents.

[16] Sinclair-Wyoming Oil Co. prices at Salt Creek, Lost Soldier, Iron Creek, effective May 20, 1941. Deduct 10 cents for East Mahoney and deduct 20 cents for Mahoney and Wertz.

[17] Add 3 cents for Panhandle prices.

Mid-Continent Flat Prices

FIELD—	Flat Price	Date Posted
Arkansas:		
Big Creek, Dorcheat McKamie	$1.15	5–22–41
Smackover, Heavy	.83	5–22–41
Louisiana, North:		
Cotton Valley Distillate	1.30	5–22–41
Cotton Valley (Holloway sn.)	1.25	5–22–41
Lisbon Distillate	1.20	5–22–41
Louisiana, South:		
Erath	1.21	5–21–41
Garden Island	1.36	5–21–41
Happytown	1.15	5–20–41
Lafitte, Paradis	1.19	5–21–41
Lake Arthur & Tepetate	1.18	5–21–41
Lake Mongoulois	1.36	5–21–41
Ville Platte	1.20	5–21–41
Texas:		
Alice, Benavides (No. Sweden) Ben Bolt, Clark-Muil, Sun and Tom Graham	1.35	5–21–41
Cayuga	.90	5–21–41
Chapel Hill 50° and up	1.25	3–19–42
Chapel Hill below 50°	1.18	1–20–42
Clay Creek	1.00	5–22–41
Cleveland	1.26	5–21–41
Conroe	1.43	5–21–41
Darst Creek	1.14	5–21–41
Esperson 35° & up; S. Esperson (Sun Oil)	1.30	5–22–41
East Texas, Flag Lake	1.25	5–20–41
Flour Bluff, East Flour Bluff, and La Rosa	1.33	5–21–41
Hockley-Cochran Counties	.87	5–21–41
Livingston, Cleveland	1.25	5–20–41
Long Lake	1.23	5–21–41
Luling	1.05	5–21–41
Lytton Springs	1.17	5–21–41
North Rincon	1.35	5–22–41
Salt Flat, North Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.14	5–21–41
Satsuma, Tomball	1.40	5–21–41
Sun Oil Co at Batson (new), Fig Ridge, Hardin, Hull 25 and up, Humble 35 and up, LaBelle, N. Dayton 25 and up, Oyster Bayou, Seabreeze, S. China, W. Orange, and Willow Slough	1.25	5–22–41
South Cotton Lake	1.35	5–22–41
Sun, N. Sun, N. Rincon, Garcia	1.35	5–22–41
Talco	.79	5–21–41
Van	1.08	5–21–41
Yates (Deep)	.95	5–20–41
Yates (Shallow)	.82	5–20–41
Yturria (Sun in S. Texas)	....	....

Michigan Prices

Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon, Saginaw	$1.44	5–27–41
Buckeye, Edenville, Bentley, Beaverton, Monitor, Kawkawlin	1.42	5–27–41
Freeman, Lincoln, Sherman Redding, Temple, Winterfield	1.39	5–27–41
Hamilton-Grout	1.29	5–27–41
Adams	1.27	6– 1–41
Arenac, Clayton, Ogemaw, W. Branch	1.24	5–27–41
Southwest (Shallow):		
Traverse crude in Allegan, Kent, Ottawa, Van Buren Cos.	1.45	6– 2–41
Clare	1.11	5–27–41

Middle West Prices

FIELD—	Flat Price	Date Posted
Lima, Ohio	$1.17	5–28–41
Illinois Basin (Sohio Corp.)	1.37	5–19–41
Lake Centralia-Salem, Illinois	1.37	5–19–41
Eastern Ill.-Western Ind.	1.22	5–21–41
Western Kentucky	1.32	5–21–41
Birk City, Western Kentucky	1.32	5–21–41
Kentucky River, Eastern Ky.	1.43	6–19–41
Big Sandy River, Eastern Ky.	1.38	6–19–41

Rocky Mountain States Prices

Colorado:		
Canon City and Florence	$0.95	4– 1–41
Iles	.97	4– 1–41
Montana:		
Cat Creek	1.15	4– 1–41
Cut Bank	1.00	1– 1–40
Dry Creek	1.02	5–20–41
Sunburst	1.00	5–20–41
New Mexico:		
Artesia	.94	5–21–41
Hogback	1.00	10–11–38
Wyoming:		
Big Muddy	1.03	4– 1–41
Byron	.55	10–11–38
Elk Basin	1.00	5–21–41
Frannie, Light	.70	5–20–41
Frannie, Heavy	.47	5–20–41
Garland	.50	10–11–38
Grass Creek, Light	1.00	5– 1–41
Grass Creek, Heavy	.50	5–20–41
Hamilton Dome	.45	5–20–41
Lance Creek (Ohio Oil Co)	1.12	7– 1–41
Mill Creek	.72	10–11–38
Oregon Basin	.40	4–20–40
Osage	1.30	10–11–38
Poison Spider	.59	10–11–38
Rock River	1.15	5–21–41
Tensleep	.6515	2– 1–41

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Current Range (Cents a gal.)		Changes from Month Ago	
Oklahoma Refineries:				
60 Octane and Under	4¾	5¼	...	...
63-66 Octane	5⅛	5⅝	...	...
72-74 Octane	5½	6	...	...
80-82 Octane, Ethyl	6⅜	6⅞	...	...
Mid-Western Tank Car:				
60 Octane and Under	4¾	5¼	...	...
63-66 Octane	5⅛	5⅝	...	...
72-74 Octane	5½	6	...	...
80-82 Octane, Ethyl	6½	6¾	...	...
New York Harbor:				
68-70 Octane	9¼	9¼	+⅜	+⅜
72-74 Octane	9¼	10¼	+⅜	+1⅜
Min. 80 Octane, '39 Research	9⅞	9⅞	+½	...
Gulf Coast:				
60 Octane unleaded	5	5	...	...
65 Octane unleaded	5¼	5¾	...	...
68 Octane unleaded	5¼	5⅞	...	...
70 Octane unleaded	5¼	5¾	...	...
72-74 Octane leaded	5¼	6	...	...
Min. 80 Octane, '39 Research	5½	5½	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2⅜	2½	+⅛	+⅛
F.O.B. Br'kenr'ge, Tex.	2	2¼	...	+¼
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅜	4½	...	...
42-44 water white	4½	4⅝	...	+⅛
Mid-Western Tank Car:				
41-43 water white	4⅜	4⅝	...	...
42-44 water white	4½	4½	...	...
New York Harbor	5¾	5¾	...	...
Gulf Coast:				
41-43 water white	3⅞	4⅜	...	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 prime white	3⅞	4¼	...	...
No. 1 straw	3½	4	...	...
No. 2 straw	3⅝	4⅛	...	...
No. 3	3½	3½	...	...
Mid-Western Tank Car:				
No. 1 prime white	3⅞	4⅛	...	...
No. 2 straw	3⅝	3⅝	...	...
No. 3	3½	3½	...	...
New York Harbor:				
No. 1	5¾	5¾	...	...
No. 2	5⅞	5⅞	+¼	+¼
No. 3	5⅞	5⅞	+¼	+¼
Gulf Coast:				
No. 2	3¾	4	...	...

HEAVY FUELS	Current Range (Per Bbl.)		Changes from Month Ago	
Oklahoma Refineries:				
No. 6	$0.80	$0.90	...	...
14-16 Gravity	.95	.95	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.80	.85	...	...
New York Harbor:				
No. 5	2.10	2.25	+.25	+.25
No. 6	1.80	1.80	+.25	+.25
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$0.95	...	...
New York Harbor	1.80	1.80	+.25	+.25
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.55	$1.68	...	...
New York Harbor	2.40	2.40	+.08	+.08
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright stock (viscosity at 210°):				
200 vis. D, 10-25 pour point	.27	27	...	...
150-160 vis. D:				
0-10 pour point	23	23	...	...
10-25 pour point	22½	23	...	...
25-40 pour point	23	23	...	...
150-160 vis. E	22	22	...	...
120 vis. D, 0-10 pour point	22	22	...	...
600 s.r. dark green	8½	8½	...	...
600 s.r. olive green	10	11	...	...
631 s.r.	18½	18½	...	...
Neutral Oils (viscosity at 100°, 0-10 pour point):				
Pale Oils:				
60-85 vis. No. 2 color	8	8	...	...
86-110 vis. No. 2 color	8½	8½	...	...
150 vis. No. 3 color	14½	14½	...	...
180 vis. No. 3 color	15	15	...	...
200 vis. No. 3 color	15	15	...	...
250 vis. No. 3 color	16	16½	...	...
280 vis. No. 3 color	17	17	...	...
300 vis. No. 3 color	18	18	...	...
Red Oils:				
180 vis. No. 5 color	15	15	...	...
200 vis. No. 5 color	15	15	...	...
280 vis. No. 5 color	...	...	...	...
300 vis. No. 5 color	17½	17½	...	...
Western Pennsylvania:				
Cylinder Stocks:				
600 s.r. filtrable	15	15	...	...
650 s.r.	15½	15½	...	...
600 flash	16	16	...	...
630 flash	17	17	...	...

LUBRICATING OIL (Cents a gal.)			Changes from Month Ago	
Bright Stock (No. 8 Color, 145-155 vis. at 210°, 540-550 fl.):				
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	25	...	...
Viscous Neutrals (No. 3 Color, vis. at 70°):				
200 (180 at 100), 420-425 fl.:				
Zero pour test	40½	40½	...	...
10 pour test	39½	39½	...	...
15 pour test	38½	38½	...	...
25 pour test	33	33	...	...
150 (143 at 100), 400-405 fl.:				
Zero pour test	38½	38½	...	...
10 pour test	37½	37½	...	...
15 pour test	36½	36½	...	...
25 pour test	31	31	...	...

Eastern States Crude Oil Prices

FIELD—	Flat Price	Date Posted
Bradford-Allegany	$3.00	3-26-42
Sw. Pa. Pipe Line	2.65	3-26-42
Eureka Pipe Line, W. Va.	2.50	3-26-42
Corning Grade, Ohio	1.31	5-27-41
Buckeye Crude, Ohio	2.30	6-18-41

Major Crude Oil Price Changes

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
Jan. 1, 1940	Up 25	.....	.....
Feb. 1, 1940	.....	.....	Cut *7
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....
April 1, 1941	.....	Up 5	.....
April 23, 1941	Up 10	.....	.....
April 24, 1941	.....	.....	Up *6
May 19, 1941	.....	Up 10	.....
May 21, 1941	Up 15	.....	.....
May 22, 1941	.....	.....	Up *6
June 18, 1941	Up 20	.....	.....
Aug. 14, 1941	Up 23	.....	.....
Aug. 25, 1941	Cut 23	.....	.....
March 26, 1942	Up 25	.....	.....

* Signal Hill 26 gravity.

CRUDE OIL PRICES IN CALIFORNIA

Prices per barrel in field, posted by Standard Oil Company of California, effective May 23, 1941
All gravities above those quoted take highest price offered in that field

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, Kern River, Kern Front, McKittrick, Round Mountain	Greeley, Canal, Wasco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Kettleman Hills	Elwood Terrace
14-14.9	....	$0.68	....	....	$0.71	....	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	$0.73	....	....	....	$0.73	$0.73	$0.73	....	....
15-15.9	....	.71	....	....	.75	$0.76	....	.72	....	.72	.71	.72	.72	....	....	....	....	....	....	.73	.73	.73	....	....
16-16.9	....	.74	$0.79	....	.79	.79	....	.75	....	.74	.73	.75	.72	....	....	....	....	....	....	.73	.75	.73	....	....
17-17.9	....	.78	.82	....	.82	.82	....	.78	....	.77	.76	.78	.72	....	....	....	....	....	....	.75	.78	.73	....	....
18-18.9	$0.80	.82	.86	....	.86	.85	....	.81	....	.80	.79	.82	.74	....	....	....	....	....	....	.78	.81	.73	....	....
19-19.9	.84	.86	.90	....	.89	.88	....	.85	....	.83	.82	.85	.77	....	....	Wheeler Ridge	....	....	$0.73	.81	.84	.75	....	....
20-20.9	.88	.90	.94	....	.93	.92	$0.80	.88	....	.86	.85	.89	.80	....	....	....	....	....	.76	.85	.87	.77	....	....
21-21.9	.92	.94	.98	....	.96	.95	.84	.91	....	.89	.89	.92	.84	....	....	....	....	....	.79	.90	.90	.80	....	....
22-22.9	.96	.98	1.02	$0.88	.99	.98	.87	.95	....	.93	.93	.96	.87	....	....	$0.76	....	....	.83	.94	.93	.83	....	....
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	....	.98	....	.97	.98	1.00	.91	....	....	.80	....	....	.87	.99	.96	.86	....	....
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	F.O.B.	1.01	....	1.01	1.02	1.03	.94	$0.99	....	.83	....	....	.90	1.03	.99	.89	....	....
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	Our	1.04	....	1.05	1.06	1.07	.98	1.02	....	....	....	....	.94	1.07	1.01	.92	....	....
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	Pipe	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	....	.97	1.11	1.04	.95	....	....
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	Line	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	....	1.01	1.15	1.07	.98	....	....
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	....	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	....	1.04	1.19	1.10	1.00	....	....
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	....	1.07	1.24	1.13	1.02	....	....
30-30.9	1.23	1.24	....	....	1.23	1.22	....	....	1.21	....	....	....	1.15	1.21	1.15	....	$1.01	$1.09	1.10	1.28	1.16	1.04	....	F.O.B.
31-31.9	....	....	....	....	....	1.24	....	....	1.25	....	....	....	1.19	1.24	1.19	....	1.04	1.12	1.14	....	....	1.06	....	Ship
32-32.9	....	....	....	....	....	....	....	....	1.29	....	....	....	1.23	1.28	1.23	....	1.07	1.14	1.17	....	....	1.09	....	....
33-33.9	....	....	....	....	....	....	....	....	1.32	....	....	....	1.27	....	1.26	....	1.10	1.17	....	....	....	1.11	....	$1.22
34-34.9	....	....	....	....	....	....	....	....	1.36	....	....	....	1.31	....	1.30	....	1.13	1.20	....	....	....	1.13	....	1.25
35-35.9	....	....	....	....	....	....	....	....	....	....	....	....	1.35	....	....	....	1.16	1.22	....	....	....	....	$1.23	1.28
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	1.39	....	....	....	1.19	1.25	....	....	....	....	1.26	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	1.43	....	....	....	1.22	....	....	....	....	....	1.29	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	....	1.25	....	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	....	....	....

OILMEN AREN'T SO TOUGH but what it wrings their hearts thinking of fine equipment destroyed on purpose, to keep it out of enemy hands.

That's all for the best—in some places on earth.

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But today even one replacement gear can mean less war production somewhere down the line. So it's no time to be complacent about oil field enemies like Weather and Wear and Neglect. They don't get very far against Conoco Coglube, the cushioning gearshield, especially aimed to defy severe washing effect. You don't find dirt, load, speed, shock and friction closing in on exposed equipment shielded by Conoco Coglube.

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Okmulgee
Ponca City
Seminole
Tulsa

TEXAS
Alice
Amarillo
Big Spring
Borger
Breckenridge
Brownwood
Corpus Christi
Corsicana
Dallas
Electra
Fort Worth
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Galveston
Henrietta
Holliday
Houston
Longview
Marshall
McAllen
McCamey
Mexia
Midland
Mineral Wells
Nocona
Odessa
Olney
Pampa
San Angelo
San Antonio
Seagraves
Sweetwater
Tyler
Wichita Falls

UTAH
Salt Lake City

WYOMING
Casper
Glenrock
Greybull
Lovell
Lusk
Medicine Bow
Rawlins
Thermopolis
Worland

U. S. Field Operations

Illinois

May Was Big Month And Operations Gaining

Jefferson County wildcat sets pipe to good Aux Vases; Clay County discovery testing after flowing 505 bbls in 24 hours natural; Madison County pool opener completed; Franklin County discovery near completion; Gallatin County discovery swabbing 4 bbls an hour natural; first reports total 53, gain of 20 over last week and high for year.

May Big Month: There were at least eight pools opened in Illinois during May, one of the state's best wildcat records. The new fields, most of which have not been named, are: Boulder, Clinton County; a Cypress sand pool near Ridgway, Gallatin County; Trenton lime pool in Madison County, 15 miles northeast of Collinsville; Tar Springs sand field in Gallatin County; Aux Vases sand pool in Franklin County; McClosky pool 5 miles south of Wayne City, Wayne County; McClosky pool 2½ miles northwest of Clay City, Clay County; Aux Vases sand field in Jefferson County, 4 miles south of Mt. Vernon (not yet drilled in but almost a sure producer).

Jefferson County: Lewis Production Co.'s State Game Farm 1, SW SW SE 21-3s-3e, 4 miles south of Mt. Vernon, has set casing on Aux Vases, total depth 2762 ft; recovered 645 ft of clean oil in hour's drill-stem test. Lewis bought lease from State of Illinois (340 acres) for $30,000 a few weeks ago.

Clay County: J. Hal Jones Neely 1, NE NW NE 11-3n-7e, 2½ miles northwest of Clay City, flowed 505 bbls natural in 24 hours from McClosky at 2939-45 and 3947-52 ft; testing after 5000 gallons of acid; flowed 127 bbls first hour after acid but production was declining.

National Petroleum Co.'s Hinterscher 1, NW SE SE 10-4n-8e, 3 miles northeast Sailor Springs, perforated McClosky with one shot and then with 20 shots; got gas in one minute after second perforations; to reperforate.

Madison County: M. D. Bryant's Hugo Meyer 1, C W½ NE SE 16-3n-6w, pumped 107 bbls in 24 hours from Trenton 2344-53 ft; is first major pool opener of 1942 on extreme west side of basin.

Franklin County: Ike W. Taylor's Old Ben 1, NE NW NE 19-5s-2e, 1½ miles southeast Sesser, on pump test of Aux Vases 2699-2707 ft, swabbed and flowed 78 bbls a day.

E. S. Adkins Old Ben 1, C NE SE 4-6s-2e, abandoned at 2890 ft.

Gallatin County: Tide Water and R. B. Martin's Minor 1, SE NE NE 28-8s-9e, swabbing 4 bbls an hour natural from Tar Springs 2166-76 ft; is two miles south of Martin's L. Bahl 1, completed a few weeks ago as pool opener in Cypress sand.

Clinton County: Texas Co.'s C. Murphy 1, NE NW NE 2-2n-2w, in new Boulder field, swabbed 412 bbls in 24 hours natural from Benoist 1196-1205 ft, but pumped 211 bbls a day.

Results on Industry's Prospecting Fronts

Completion of 49 wildcats during the week added another 10 oil producers, increasing the year total to 139 new oil spots.

Virginia: State's first commercial well makes 20 barrels.

Oklahoma: New field in Noble County.

Texas Panhandle: To try Ordovician.

Illinois: May was big month—8 new fields, and last week's 53 first reports largest week this year.

Indiana

Posey County: Gulf Refining Co.'s Lynn Strack 1, C NE NE 30-6s-13w, wildcat a mile north of Mt. Vernon, was drilling at 2770 ft, near McClosky after getting a slight oil show in Benoist. Starting at surface elevation of 464 ft, Waltersburg was topped at 2075 ft; Tar Springs 2205; Glen Dean 2272; Golconda 2305; Barlow 2492-99; Cypress sand 2522; Benoist 2635; Renault 2720.

Smokey Oil Co.'s McCarthy 1, C NW SW 17-7s-12w, south outpost to the new field east of Mt. Vernon, was drilling below 2660 ft through a dry Aux Vases. Starting at 377 ft, Glen Dean was topped at 2071.

Gibson County: Location was staked for Charles Clarke's Townsley 1, NW NE NW 2-9s-9w, wildcat 5 miles south and 1 mile west of Oakland City.

Kentucky

Union County: Dan Whatley's Kingdom 1, NW SE SE 1-O-19, wildcat 12 miles south of Mt. Vernon, Indiana, and 4 miles north of Morganfield, Kentucky, set casing at 1774 ft after drill-stem test of Waltersburg at 1774-86 ft showed 155 ft of clean oil in 55 minutes. (Phillips Petroleum Co. farmout.)

ILLINOIS COMPLETIONS

Clay County: Wildcat—Eason Oil Co. et al's Miller 1, c sw ne 35-5n-6e, pb 2738 ft, abnd 2924 ft.

Clinton County: Wildcat—E. Frank Jones' Harrison 1, c ne se nw 2-2n-2w, pay 1209-1221 ft, 264 bbls, 1221 ft.

Fayette County—Texas Co.'s Wright 5, sw se nw 31-6n-3e, salt water disposal well, 1614 ft.

Hamilton County—Texas Co.'s Davis 2, 16 ft east of ne nw ne 7-6s-7e, Bethel 2850-75 ft, A. V. 2954-75 ft, pb 2975 ft, 95 bbls, 3250 ft.

Kewanee Oil & Gas et al's Culwar B-5, c se ne sw 14-6s-5e, L. O'Hara 3172-88 ft, McClosky 3248-62 ft, 100 bbls, td 3358 ft.

Hamilton County: Wildcat — Seaboard's Kiefer 1, c s½ se sw 30-3s-5e, abnd 3404 ft.

Jasper County—Roy R. Powers' Benefiel 1, c e½ sw ne 7-5n-14w, pay 2862-79 ft, 7 bbls, 2879 ft.

Roy R. Powers' Hall 1, c e½ ne ne 19-5n-10e, pay 2467-77 ft, 110 bbls, 2477 ft.

Jefferson County: Wildcat—Kingwood Oil Co.'s Welborn 1, 14 ft e of ne se se 13-2s-1e, abnd 2430 ft.

Marion County—Texas Co.'s Mazanek 1, ne nw nw sw 36-4n-2e, Weiler 1807-14 ft and 1830-46 ft, Bethel 1932-40 ft, pb 1940 ft, 135 bbls, td 2126 ft.

Richland County: Wildcat—Pure's Grubb A-1, sw½ sw se 36-3n-8e, pay 3010-25 ft, 4 bbls, 3025 ft.

Washington County: Wildcat — R. Hal Compton's Huegley-Hasmeier 1, c se sw se 9-2s-2w, abnd 1850 ft.

Wayne County—Bell Bros.' Stull 1, c se se 18-1s-5e, Pay 2920-40 ft, 1168 bbls, td 2943 ft.

Gulf's Lancy 1, se nw se 18-1s-5e, abnd 2955 ft.

Cobb et al's Lowe 1, c w½ nw sw 3-1s-6e, abnd 3190 ft.

Gulf's Bull 2, ne sw sw nw 28-1s-6e, pay 3141-79 ft, 107 bbls, 3179 ft.

Texas Co.'s Fuhrer 3, c w½ nw se 28-1s-6e, pay 3013-27 ft, 3156-64 ft, 132 bbls, 3190 ft.

Texas Co.'s Buchal 1, nw sw sw ne 33-1s-6e,

U. S. Drilling Operations in Week Ended May 30, 1942

STATE	ALL WELLS COMPLETED — THIS WEEK Total	Oil	Gas	Dry	*Miscel.	Total 1942	Total this Date 1941	‡WILDCATS COMPLETED — THIS WEEK Total	Oil	Gas	Dry	Distillate	Total 1942
Alabama	....	....	....	....	....	3	1	....	....	....	....	....	3
Arkansas	5	2	....	3	....	57	65	....	....	....	....	....	7
California	5	3	....	2	....	313	437	....	....	....	....	....	10
Colorado	....	....	....	....	....	4	6	....	....	....	....	....	....
Georgia	....	....	....	....	....	2	....	....	....	....	....	....	2
Illinois	24	15	....	6	3	740	1,302	6	2	....	4	....	207
Indiana	14	2	....	12	....	166	212	4	....	....	4	....	24
Iowa	....	....	....	....	....	2	....	....	....	....	....	....	....
Kansas	27	19	....	5	3	654	856	2	1	....	1	....	151
Kentucky	4	1	....	3	....	61	118	3	1	....	2	....	7
Louisiana	14	12	....	2	....	447	566	2	1	....	1	....	64
Michigan	13	3	4	6	....	276	331	2	....	....	2	....	66
Mississippi	1	....	....	1	....	58	72	....	....	....	....	....	18
Missouri	....	....	....	....	....	15	26	....	....	....	....	....	....
Montana	2	1	....	1	....	68	73	....	....	....	....	....	....
Nebraska	....	....	....	....	....	24	37	....	....	....	....	....	11
New Mexico	13	9	1	2	1	179	148	....	....	....	....	....	11
New York	18	11	....	7	....	485	297	....	....	....	....	....	1
Ohio	13	3	7	2	1	455	653	....	....	....	....	....	....
Oklahoma	22	10	....	11	1	654	835	9	2	....	7	....	120
Pennsylvania	44	40	3	1	....	1,292	1,608	....	....	....	....	....	....
Tennessee	....	....	....	....	....	2	8	....	....	....	....	....	....
Texas	97	63	1	29	4	2,789	3,936	21	3	....	18	....	454
West Virginia	13	2	6	3	2	295	279	....	....	....	....	....	....
Wyoming	....	....	....	....	....	33	41	....	....	....	....	....	2
Total this week	329	196	22	89	22	9,072	11,909	49	10	....	39	....	1,158
Total last week	335	204	22	91	18	8,743	11,253	49	7	....	42	....	1,109
Total this year	9,072	5,243	708	2,279	842	.....	.....	1,158	140	13	999	6	.....

* Includes old wells deepened, water intake, gas input, salt water disposal, and distillate wells.
‡ OPC program calls for 4,000 wildcats in 1942, of which 624 should produce oil and 116 gas, leaving 3,260 dry.

pay 3144-65 ft, 3096-3104 ft, 180 bbls, 3172 ft.

White County—Sun's Ford 1, sw sw ne 21-4s-14w, A. V. 2828-46 ft, 549 bbls, 2867 ft.

Skelly's Bryant 7, c sw se sw 7-4s-10e, pay 3200-23 ft, 75 bbls, 3223 ft.

Gulf's Gates 1, sw ne se 4-5s-9e, pay 3210-39 ft, 76 bbls, td 3239 ft.

H. K. Riddell's Hubele 1, 50 ft s of sw sw sw 7-6s-11e, pay 1324-35 ft, 58 bbls, 1335 ft.

OLD WELLS DEEPENED

Hamilton County—M. E. Roberts' Lockwood 1, sw sw ne nw 24-6s-5e, A. V. sand 3121-45 ft, otd 2150 ft, 47 bbls, 3145 ft.

White County—Sun's Hertlein 1, c s½ se nw 13-4s-9e, otd 3269 ft, abnd 3295 ft.

WILDCAT STARTS

Clay County—A. M. Myers' Goble 1, sw ne se nw 20-12n-14w, dr.

Cumberland County—Falcon Seaboard Drlg. Co. et al's Neumann 1, c n½ sw sw 16-9n-8e, lcn.

Edward County—Central Pipe Line Co.'s Torpley 1, n½ nw nw 31-1n-14w, lcn.

Sun's McKibben 1, c e½ se se 19-2s-10e, lcn.

Gallatin County—Murphy Oil Co. et al's Spencer 1, c ne nw 33-7s-9e, lcn.

Hamilton County—Texas' Epperson 1, ne se se 9-4s-7e, lcn.

Smokey Oil Co.'s York 1, ne se nw 36-4s-7e, lcn.

Jefferson County—Shell's Schmidt 1, nw nw se 25-2s-1e, dr.

Cameron Bros.' Heartenstine 1, nw ne ne 19-2s-3e, lcn.

Texas' Mydler 1, se ne nw 10-3s-1e, dr.

Perry County—Texas' Malinski 1, se se se 1-5s-2w, lcn.

Saline County—Carl Robinson's Blackburn 1, sw ne 19-7s-7e, lcn.

Wayne County—J. W. Carter et al's Fartheree 1, nw sw ne 31-2n-5e, lcn.

Deep Rock Oil Corp.'s Blackburn 1, nw ne 30-1s-7e, lcn.

White County—Sinclair-Wyoming's Cobbel 1, sw sw sw 36-6s-8e, lcn.

Magnolia's H. Pearce Trust 1, ne nw sw 35-6s-10e, dr.

INDIANA COMPLETIONS

Gibson County—Kingwood Oil Co.'s Phillips B-1, don 112-1n-10w, abnd 1835 ft.

R. D. Brown, Inc.'s Morrow 1 c sw se ne 36-1s-10w, Hardinsburg 1335-1340¼ ft, 39 bbls, 1340½ ft.

Travis' Howard 1, 180 ft n of ne ne se 35-1s-11w, abnd 921 ft.

Knox County—Kingwood Oil Co.'s Haxleton Bank 1, nec n½ w½ 8-1n-10w, abnd 2490 ft.

Pike County: Wildcat—S. C. Yingling's Blaize 1, ne nw 12-1s-9w, abnd 1480 ft.

Posey County—Banks & Robers' Schreiber 1, nw sw sw 30-6s-12w, abnd 1060 ft.

W. C. McBride's Grabert 1, ne se ne 7-7s-12w, abnd 2804 ft.

Carter and Gulf's Erwin C-76 5, nw se ne 1-7s-14w, abnd 1350 ft.

Carter and Gulf's Vogel C-76 1, c sw sw 1-7s-14w, pb 2019 ft, 316 bbls, td 2509 ft.

Carter and Gulf's Black C-76 1, c se se 2-7s-14w, abnd 2080 ft.

Spencer County—Cohn's Fox 1, 80 ft s of nw ne ne 5-7s-7w, abnd 1002 ft.

Spencer County: Wildcat—Travis et al's Haaf 1, 140 ft n of cse nw 20-6s-5w, abnd 1200 ft.

Sullivan County: Wildcat—Sun's Poston 1, sw nw 34-7n-9w, abnd 1285 ft.

Vigo County: Wildcat—S. E. Bailey's Hill 1, se sw se nw 34-10n-9w, abnd 626 ft.

WILDCAT STARTS

Posey County—Sun's Welborn 2, sw ne sw 12-7s-12w, dr.

Spencer County—W. E. Gary, Jr.'s Hall 1, 20 ft w of c nw sw 34-7s-7w, lcn.

W. E. Gary Jr.'s Locker 1, c sw nw 34-7s-7w, lcn.

Campbell & Parrin's Wilderson 1, 120 ft n of ne nw 3-8s-7w, dr.

KENTUCKY COMPLETIONS

Daviess County: Wildcat—Miller et al's Burke 1, 3-P-28, abnd 1826 ft.

Grayson County: Wildcat—Louisville Gas' Constance 1, 12-K-39, abnd 1730 ft.

Henderson County: Wildcat—Chenault et al's Glenmore Dist. Co. 1, 18-Q-26, pays 1996-2006 ft, 2019-28 ft, pb 2028 ft, 20 bbls, td 2030 ft.

Henderson County—Farmer & Chenault's Shaffer 1, 20-Q-26, abnd 2053 ft.

WILDCAT START

Union County—Dan Whatley & J. Lindas Co.'s Kington Coal Co. 1, 1-O-19, dr.

Oklahoma

Noble Pool Opener Flowing 200 Barrels

New Wilcox pool Noble County; Pauls Valley activity remaining high; Kingfisher test near objective strata.

Noble County: Deep Rock's Schultz 1, NW SW SE 9-22-2e, east of Otoe production, is a new field in Wilcox sand. Test drilled complete section and into Arbuckle at 4765 ft, plugged back and perforated with 25 shots, 4508-4514 ft, to make estimated 200 bbls daily, flowing. Gas estimated to exceed 3,500,000 cu ft.

Garvin County: Pure's Teter 2 and 3, south and north offsets respectively to field discovery, being completed as large wells, the firm has staked No. 4 east offset to discovery, No. 5 as a west offset to No. 2 and No. 6 as a south offset to No. 2. This pattern presupposes a southwest trend. Pure has abandoned Price 1, SW SW SE 4-3-1, at 4752 ft.

Kingfisher County: Union Oil Co. of California's Brown 1, C SE NW 11-19n-7w, is important wildcat eastern edge Anadarko Basin drilling Mississippi lime below 6889 ft, test is on seismic high.

OKLAHOMA COMPLETIONS

Carter County: Ed Cox—J. H. Herell's Cox 1, ne ne sw 22-2s-2w, sand 1013-1150, 251 ft 5-in on bottom, perf 10 bbls oil and 10 bbls water, td 1245 ft.

Creek County: Slick—Midco's Tiger 1, ne ne nw 24-16n-10e, Bartlesville 2073 ft, hole full water, abnd 2100 ft.

Jefferson County: Oscar—Benson & Benson's Seay 1, sw nw se 29-6s-5w, sand 1918-24 ft, abnd 1926 ft.

Jefferson County: Wildcat—W. W. Woodworth's Sullivan 1, c sw nw ne 28-3s-4w, dry sand 1758-1762 ft, shale 1762 ft, sand 1768 ft, oil staining 1768-75 ft, hard dry sand 1770-73 ft, dry sand 1780-90 ft, sand staining 1847-60 ft, Arb. limestone 2590 ft, abnd 2655 ft.

Kiowa County: Hobart—H. J. Sherman's Watkins 1, c ne ne 18-7n-17w, Viola 1347 ft, abnd 2182 ft.

Marshall County: Wildcat—Colbert-Marshall's Burris 1, c se se 4-6s-6e, Miss. 2035 ft, Dolo. 2065 ft, Viola 2130 ft, tight sand

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Wherever men and machines work, there is always plenty of AIR. Wherever Wisconsin heavy-duty air-cooled engines work, there are no "water stops"; no lay-ups or delays for servicing water-cooling parts or mechanism.
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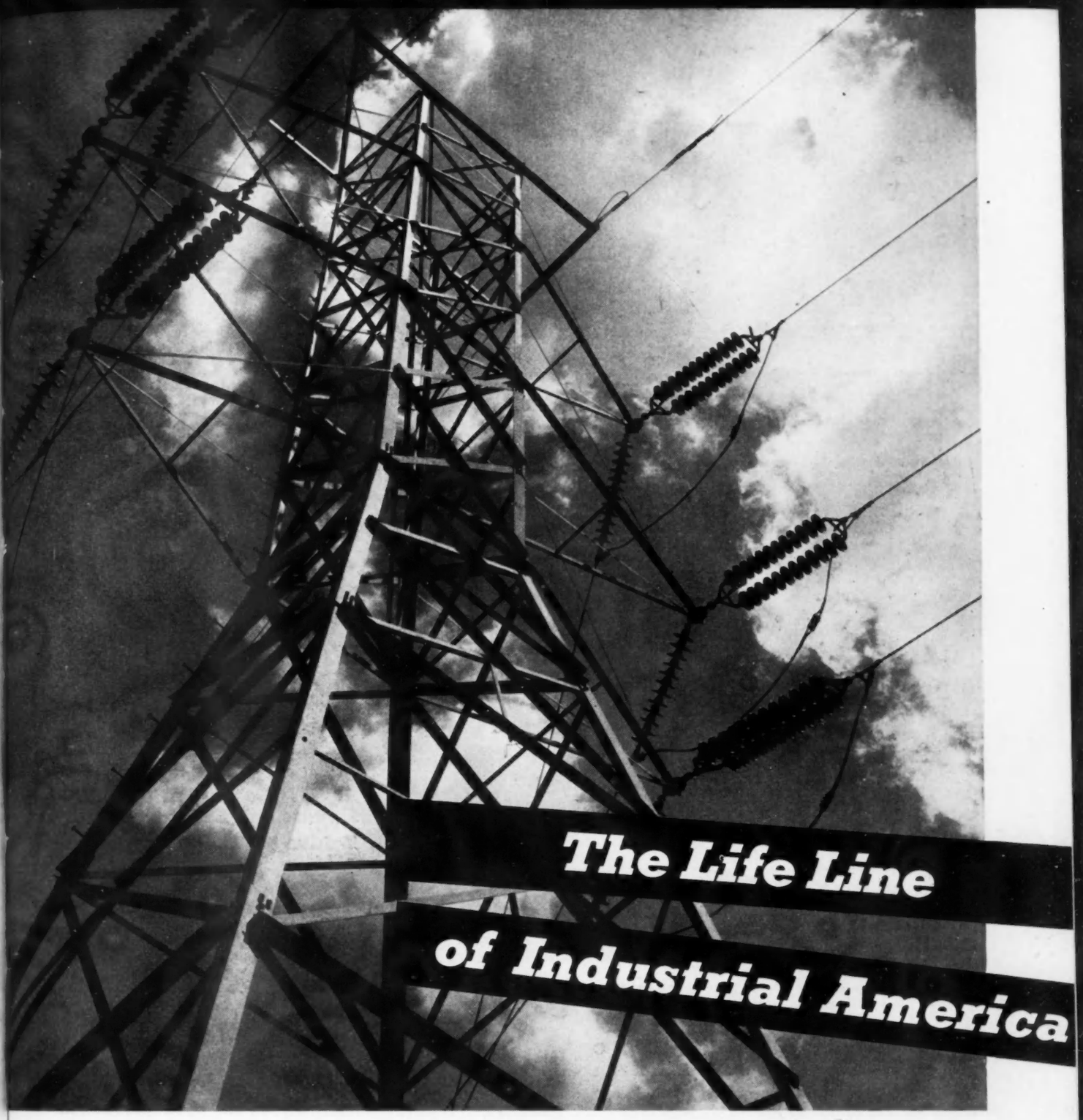

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2515-25 ft, fine sand 2525-50 ft, Siltstone 2605-50 ft, sand 2724-27 ft, stain and odor, sand 2795-2811 ft, cored 2811-23 ft, fine sand, lime 2956-76 ft, sandy lime 2974-3025 ft, sand 3025-32 ft, cored 3032-38 ft, sand 3063 ft, cored 3176-96 ft, soft sandy lime, top tight sand zone 3660 ft, cored 3677-83 ft, hard tight med. grain sand, cored 3717-32 ft, fine gr. sand, good odor, cored 3732-37 ft, med. gr. sand, cored 3738-48 ft, fine gr. sand, drill-stem test, open 45 min, mud salty water, cored 3748-53 ft, fine gr. sand cored 3753-65 med. sand, open at 3748 ft, 2 hrs, mud and salt water, abnd 3794 ft.

McClain County: Byars—Phillips' McAfee 1, se ne 21-5n-3e, Viola 3580 ft, 1000 gals acid, flow 53 bbls oil and 8½ bbls water, ¼-in, td 3597 ft.

Osage County: Avant—Sinclair Prairie's 58, nw sw nw 20-23n-12e, Bartles 1629 ft, pay 1703-29 ft, pay 1729-58 ft, shot 50 qts, pump 20 bbls, td 1750 ft.

Osage County: Barnsdall—Oliphant's 3, nw nw ne 6-24n-11e, Bartles 1720-55 ft, shot 40 qts, pump 25 bbls, 1780 ft.

Osage County: Ramona—Dunn & Miller's 1, 40 ft e of sw sw sw 30-24n-11e, Bartles 1528 ft, pay 1565-1625 ft, shot 230 qts, pump 120 bbls oil, 100 water, td 1634 ft.

Pawnee County: North Terlton—Major Oil Co.'s Moore B2, 190 ft w of se nw ne 12-20n-7e, Hominy sand 2702-2800 ft, pb 2768 ft, shot 45 qts, pump 72 bbls, td 2968 ft.

Pawnee County: Wildcat—Alma Oil Co.'s Deroin 1, se nw nw 25-23n-3e, Osw 3155 ft, Miss 3635 ft, Wood 3835 ft, Wilcox 3880 ft, 3582 bbls, td 3891 ft.

Payne County: Wildcat—Portable Drlg. et al's School 1, sw ne ne 36-18n-1e, Paw 1670 ft, Avant 2843 ft, Dew 3000 ft, Peru 4389 ft, Miss 4605 ft, Wood 4715 ft, Hunton 4748 ft, Viola 4900 ft, 1st Wilcox 4971-72 ft, 2nd Wilcox 5075 ft, pb in pipe to 5775 ft, perf 9 holes 4746-51 ft, flow 20 bbls oil, 46 water, td 5092 ft.

Pottawatomie County: St. Louis—Magnolia's Nona 3, ne nw 11-7n-4e, 2nd Wilcox 4262 ft, pay 4266-68 ft, pump 194 bbls, 4268 ft.

Pottawatomie County: Wildcat—Jordan & Atlantic's Pecore 1, 34-10n-3e, Belle City 2710 ft, Hogs 3200 ft, Ccb 3550 ft, sand 4020-40 ft, sand 4105-15 ft, Mayes 4810 ft, Wood 4920 ft, Hunton 5045 ft, Sylvan 5060 ft, Viola 5155 ft, Dense 5208 ft, Dolo 5237 ft, Wilcox 5285 ft, cored 5289-93 ft, sandy dolo 5380 ft, 2nd Wilcox 5410 ft, abnd 5431 ft.

Seminole County: Wildcats—Shell's Smith 1, nw ne ne 4-9n-7e, Inola 3197 ft, Bartles 3211 ft, brown lime 3373 ft, Booch 3512-44 ft, Crom 3667 ft, dst 3692 ft, 45 ft water, Gilc 3667 ft, no Crom, Basal Des Moines 3703 ft, Caney 3733 ft, Mayes 4110 ft, Hunton 4216 ft, Sylvan 4357 ft, Viola 4448 ft, Dense 4498 ft, Dolo 4500 ft, Wx 4515-65 ft, abnd 4600 ft.

Richard Hughes et al's Grogg 1, se ne se 13-11n-7e, Checkerboard 1330 ft, Cleveland 1350 ft, Osw 2125 ft, Prue 2140 ft, Verd 2535 ft, Skinner 2645 ft, Inola 3160 ft, top sand 3660 ft, abnd 3708 ft.

Keener Oil & Gas Co.'s Klabzuba 1, ne sw ne 20-11n-8e, Hots 730 ft, Lay 780 ft, Ccb 1135 ft, Cleve 1140 ft, Osw 1960 ft, Calvin 1970 ft, Ver 2440 ft, Skinner 2530 ft, Earlsboro 2920 ft, Inola 2990 ft, brown lime 3195 ft, Booch 3334 ft, Lower Booch 3410 ft, Cromwell 3581 ft, abnd 3636 ft.

Stephens County: Velma—Skelly's McClanahan 20, ne sw sw 35-1s-5w, sand 687-98 ft, shot 10 qts, pump 40 bbls, pb 699 ft, td 730 ft.

Magnolia's Carpenter 1, se nw sw 36-1s-5w, sand 836-41 ft, hole full salt water, abnd 910 ft.

Stephens County: Wildcat—Kingery Prod. Co.'s Edwards 1, ce½ se se 14-1n-4w, sand, limey sand, county line lime 1981 ft, Hoxbar 1760 ft, sand 3659 ft, sand 3807-10 ft, abnd 4003 ft.

OKLAHOMA OIL WELLS DEEPENED

Stephens County: Velma—Skelly's Steifal 4B, ne se nw nw 35-1s-5w, otd 800 ft, sand 909-29 ft, pb 929 ft, pump 30 bbls, td 952 ft.

OKLAHOMA WILDCAT STARTS

Cleveland County—Luther Mayes et al's Mullman 1, nw nw nw 22-10n-1e, dk.

Luther Mayes et al's Mayes 1, ne ne sw 30-10n-1e, rig.

Murray County—Rodgers Bros.' Vanderslice 1, c nw nw se 25-2n-2e, dr.

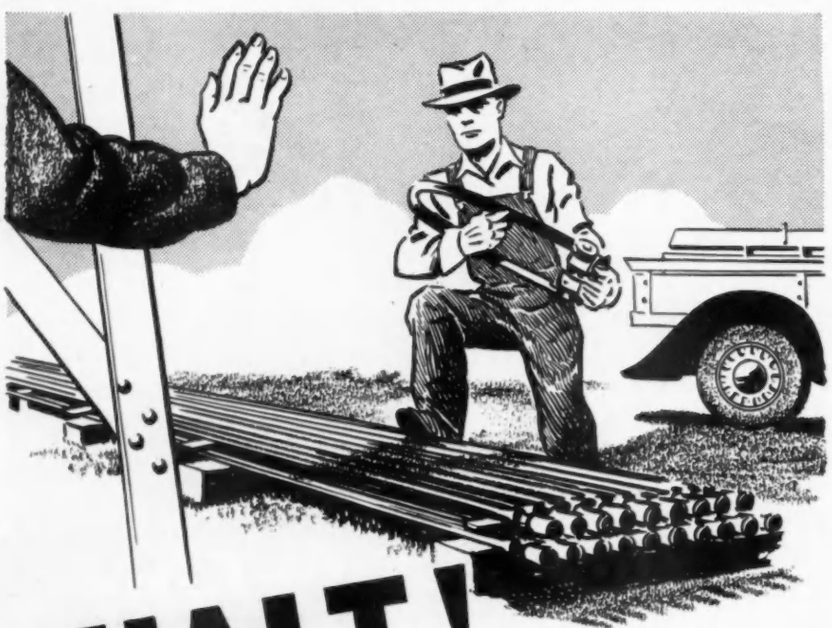
Muskogee County—W. B. Pine's Lacey & Steel 1, se ne nw 24-13n-17e, Booch 455-670 ft, sand 1509-25 ft, Hunton 2382 ft, dr.

Okfuskee County—W. O. Carte's Bucco 1, ne ne se 20-10n-12e, Booch 1882 ft, Gilc 2480 ft, dr.

Oklahoma County—Denver P & R's Randolph 1, sw se ne 30-14n-3w, rur.

Seminole County—W. O. Allen's Baker 1, nw nw se 29-10n-6e, rig.

Tillman County—W. H. Little et al's Dickey et al 1, cnw nw 3-5s-15w, dr.



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The S. M. Jones Company is glad to offer suggestions on how to get better service and longer life from sucker rods now in use. However, this is only one example of the responsibility we have always felt toward the industry we have served exclusively for 51 years. Our duty, in wartime, is plain. This knowledge comes from the experience of serving the oil industry through two other wars.

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Kansas

Smyers and Peace Creek Production Is Extended

Smyers and Peace Creek again extended; northwest trend of Zenith field, Stafford County, apparently terminated.

Stafford County: Stanolind's Vincent 1, CE½ SW SE 4-24-11w, northwest Zenith field, is drilling below 3814 ft after failing to complete in Viola; Viola lime at 3768 ft had good show but after drilling plugs failed to make a producer. Zenith lower pay is Viola.

Rice County: Shade & Berry's Mattson 1, CSW SE 25-19-6w, east of Smyers pool production filled 1600 ft from chat at 3356 ft and is deepening.

Reno County: Republic Natural Gas Co.'s Werner 2, C SW NE 15-23-10w, is an offset to production extending Peace Creek production northwest. Well is swabbing and testing after 3000 acid.

KANSAS COMPLETIONS

Barton County: Prusa—Harry Gore's Oeser 1, cn½ se nw 17-16s-11w, Lansing 3007 ft, pay 3072-79 ft, 6000 gals acid, 306 bbls, td 3079 ft.

Barton County: Kraft—Skelly's Grosshardt 2, ne sw ne 15-17s-11w, Arb 3281 ft, 2000 gals acid, pump 472 bbls, 3306 ft.

Butler County: Semi-Wildcat—C. H. Pechin's Dixon 1, cnw sw 12-27s-6e, Kansas City 2049 ft, 1500 gals acid, pump 40 bbls oil, 8 water, 2169 ft.

Butler County: Semi-Wildcat Fox-Bush—Ash & Ritchie's Manning 1, ce½ sw ne 33-28s-5e, Bartlesville 2777-80 ft, abnd 2791 ft.

Cowley County: East Frog Hollow—B. B. Blair's Allen 1, ne se nw 14-32s-5e, Bartles 3025 ft, shot 30 qts, pump & flow 381 bbls, 3063 ft.

Phillips' Lena 5, ne sw se 17-32s-5e, Bartles 3000 ft, pay 3013-25 ft, shot 96 qts, pump and flow 843 ft, 3027 ft.

W. M. McKnabb et al's Rice Est. 1, ne nw sw 21-32s-5e, Bartles 3048 ft, shot 80 qts, pb 2950 ft, td 3071 ft.

Ellsworth County: Bloomer—Wakefield's

Janssen 1, nw nw ne 29-17s-10w, Arb 3291 ft, pb 3300 ft, 500 gals acid, abnd 3343 ft.

Greenwood County: Virgil—Aikman & Braden's Meyers "B" 4, cnw se 10-24s-12e, Miss 1832 ft, abnd 1842 ft.

McPherson County: Linsborg—M. & L. Oil's Nelson 2, c nw se 7-17s-3w, Viola 3360 ft, pay 3360½-63 ft, 3000 gals acid, pump 518 bbls, td 3371 ft.

Pawnee County: Wildcat—Adair & Morton et al's Thompson 1, nw ne nw 16-22s-20w, Anhy 450 ft, Ft. Riley 1710 ft, Florence 1810 ft, Wreford 1890 ft, Topeka 2820 ft, Lansing 3295 ft, Congl 3621 ft, Miss 3630 ft, Kinderhood 3650 ft, Viola 3671 ft, 2000 gals acid, pb 3023 ft, Viola 3671-3730 ft, 200 bbls, td 3734 ft.

Phillips County: Ray—Cities Service's Pinkerton 6, Reagan 3597 ft, 2000 bbls, 3604 ft.

Reno County: NE Peace Creek—Cities Service's Sentney 1, se nw nw ne 14-23s-10w, Viola 3745 ft, 500 gals acid, 3000 bbls, 3758 ft.

Reno County: Peace Creek—Cities Service's Heylmun 2, sw nw se 15-23s-10w, Viola 3786 ft, 500 gals acid, 430 bbls oil 18% water, td 3791 ft.

Rice County: Cramm—Gulf's Nellis 1, cn½ nw se 22-19s-9w, Arb 3227 ft, pb 3255½ ft, 3000 gals acid, 321 bbls, td 3258 ft.

Rice County: Campbell—Lauck & Moncrief's Murphy A-3, cn½ nw sw 22-19s-9w, Lansing 2863 ft, pay 2933-50 ft, pb 3206 ft, 3000 gals acid, pump 46 bbls oil, 34% water, td 3257 ft.

Rice County: Raymond—Anderson-Prichard's Yeo A-2, cn½ nw ne 30-20s-10w, Arb 3294 ft, 1000 gals acid, pump 687 bbls, td 3297 ft.

Rooks County: Laton—Broadview's Baxter E-3, cs½ nw ne 3-9s-16w, Lansing 3081 ft, 4000 gals acid, pump 197 bbls, 3132 ft.

Russell County: Greenvale—Jones & Shelbourne's Kuhnle 8, sw sw nw 4-15s-12w, Gorham 3186 ft, pump 150 bbls, 3200 ft.

Russell County: Trapp—Phil-Han's Karst 1A, se ne se 22-15s-14w, Arb 3318 ft, 500 gals acid, 2211 bbls, td 3322 ft.

Saline County: Wildcat—E. B. Shawver's Agin 1, cnw ne 33-15s-1w, Lansing 1963 ft, Miss 2608-55 ft, abnd 2655 ft.

Stafford County: Semi-Wildcat—Stanolind's Harms 1, cn½ ne nw 18-22s-12w, Arb 3666 ft, 500 gals acid, 3000 bbls, 3671 ft.

Stafford County: Kipp—Skelly et al's Kipp A-4, cs½ nw ne 27-25s-14w, Lansing 3696 ft, pay 3846 ft, flow 200 bbls, 500 gals acid, td 3892 ft.

Sumner County: North Vernon—E. B. Shawver's Grant 1, c sw nw 9-35s-2e, Miss 3417 ft, abnd 3479 ft.

KANSAS WILDCAT STARTS

Ellsworth County—Mid Plains Oil's Alden 1, cn½ ne se 32-17s-9w, lcn.

Finney County—Kansas & Nebraska Pipe Line's Layman 1, c sec 13-24s-34w, lcn.

Harper County—Oil Interests, Inc.'s Notestine 1, nw nw nw 18-32s-3w, dr.

Marion County—Cities Service's Goertzen 1, sw sw ne 27-21s-2e, dr.

NEW MEXICO COMPLETIONS

Eddy County—Barney Cockburn et al's Etz 1, c sw nw 35-16s-30e, flow 90 bbls 2-in, shot 90 qts 3140-88 and 60 qts 2985-3015 ft, td 3188 ft.

J. H. Elder et al's Root 7, 975 ft from n and 330 ft from w 7-17s-30e, abnd 2860 ft.

Nay Hightower et al's Grier 2, c sw nw 31-16s-31e, flow 410 bbls ½-in natural, 3028-51 and 3103-16 ft.

Mizel-Ployhar-Randel's Friess 1, ne nw se 19-17s-31e, flow 18 bbls 2-in, acid 3000 gals; shot 200 qts 2808-67 ft, td 3521 ft, pb to 2870 ft.

Texas Trading Co.'s State 1, c nw nw 32-16s-31e, flow 35 bbls 2-in, shot 120 qts 3226-3300 ft; 100 qts 3277-3300 ft; 90 qts 3220-41 ft, td 3300 ft.

Van S. Welch et al's State 1, c ne ne 36-16s-30e, flow 65 bbls 2-in, shot 30 qts 3082-94 ft, td 3119 ft.

S. P. Yates et al's Robinson 1-B, se se nw 34-17s-29e, elev 3515 ft, salt 330-745 ft, brown lime 2290 ft, abnd 3030 ft.

Lea County: Maljamar—Johnny Cockburn et al's Miller 1-B, c nw nw 25-17s-32e, flow 640 bbls 2-in, shot 200 qts 4100-4200 ft, td 4209 ft.

Johnny Cockburn et al's Miller 2-B, c ne nw 25-17s-32e, flow 608 bbls 2-in, shot 220 qts 4075-4210 ft.

Maljamar O&G Co-Emperor Oil Co.'s Hudson 1, c sw sw 15-17s-32e, flow 126 bbl ¼-in natural, 3720-30 ft, td 4002 ft.

Lea County: West Eunice—Wilson Oil Co.'s State 9, c se nw 13-21s-34e, flow 200 bbls cas natural, sand 3710-30 ft, td 3781 ft.

San Juan County: Baker Dome—Southern Union Production Co.'s Tribal 2, sw ne 21-32n-14w, 10.0 gas, Dakota, td 2590 ft.

OLD WELL DEEPENED

Lea County: Hobbs—Shell's McKinley 3-B, sw sw sw 20-18s-38e, otd 4207 ft, flow 75 bbls 18/64-in, acid 2000 gals 4227-52 ft.

WILDCAT STARTS

Lea County—Richmond Dril Co. et al's State-Shell 1, c ne se 10-17s-35e, lcn.

N. G. Penrose, Inc.'c Alex Rodgers 1, c nw sw 12-22s-37e, 1¼ mi e Penrose, lcn.

N. G. Penrose, Inc., American Drl. Corp.'s State 1, c se se 22-16s-36e, 2⅛ mi nw Lovington pool, lcn.

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West Texas

Lamb County Test Has Showing in Ellenburger

Preliminary test under way on Ordovician prospect on north flank of granite ridge in upper Permian Basin. Three new tests assigned Fullerton deep pool, and Northwestern Andrews County wildcat nearing Clear Fork objective. Pipe set for production test of Ordovician saturation in Sutton County wildcat.

Lamb County: Stanolind's Hopping 1, ½-mile southeast Fieldton, awaiting drill-stem test at 8243 ft, elev 3561 ft, with nominal oil stain and porosity in Ellenburger. Top of Ordovician not revealed. Permian drill stem test at 3822-3962 ft proved dry, and test at 6719-7016 ft yielded 1000 ft mud and 2425 ft sulphur water.

Andrews County: Humble's Sims 1, 12 miles west of Fullerton pool, drilling dry Clear Fork lime 6345 ft, having topped San Angelo lime 5670 ft, elevation 3495 ft. Scheduled to explore pre-Permian beds if Tubb zone in Clear Fork is nonproductive. Fullerton Oil Co. made locations for south offsets to its discovery and Magnolia's producer, and for Wilson 2-A, C SE NE PSL Sec 16, Blk A-32, latter being southeast outpost. The Embar, West Andrews and Emma-West Fuhrman trend areas currently have 11 rotaries in service as owners of University leases attempt to forestall June and October expirations. Seaboard's Thornberry 1-F, mile north by east of West Fuhrman pool, flowed 66 bbls initial on gas-lift after nitro shot and acid treatments 4414-4594 ft.

Pecos County: Siemoneit Drilling Co.'s Burnhart 1, south edge Conry-Davis 2-pay pool, flowed 135 bbls natural through casing on 8-hour gauge from upper Permian 2271-80 ft. Gulf and L. H. Wentz's Millar 3, northwest offset their Wentz pool discovery, was coring dry dolomite 4199 ft, having entered Ellenburger 4167 ft, elev 2544 ft, same structural position as their plugged-back producer.

Sutton County: S. B. Roberts et al's Allison 1, C NW NE GH&SA 44, Blk K, fourth Ordovician test for this nonproductive county, logged ample oil and gas showings in dolomite 5350-68 ft while carrying 4000-ft salt water from Strawn sand 4986-5020 ft to warrant cementing 5½-in 5248 ft. Entered Ellenburger dolomite 5305 ft, elev 2941 ft, being 765 ft low to Ellenburger failure situated 7¼ miles to southeast. The new prospect is ¼-mile northwest of a 4950-ft failure that had small show oil in Canyon and show gas in Strawn.

Crockett County: Humble's Owens 1-F, west offset to production in Clara Couch pool, abandoned 2111 ft, making fourth failure since opening of shallow pool. Area has four small pumpers and a non-commercial gasser.

WEST TEXAS FIELD COMPLETIONS

Andrews County: Fullerton—Magnolia's Ralph 1-11, c se se PSL 11, blk A-37, flow 336 bbls ¾-in, acid 18,000 gals. Clear Fork 7058-7306 ft and perf 6950-7015 ft, td 7403 ft.

Cochran County: Slaughter—Anderson-Prichard's Dean 1, sec 446-ac lse, leag 58, Martin CSL, flow 594 bbls cas, acid 20,000 gals perf 4965-87 ft, pay 4906-87 ft.

Anderson-Prichard's Woodley-Neal 1, 55 ft from n and 440 ft from w lines lab 5, leag 57, Oldham CSL, flow 456 bbls cas, acid 10,000 gals 4913-57 ft.

Devonian Oil Co. et al's Duggan 18-A, nec lab 11, leag 55, Oldham CSL, flow 1053 bbls 2½-in, acid 11,000 gals 4972-5028 ft.

Honolulu's Igoe-Smith 44, nec lab 15, leag 56, Oldham CSL, flow 965 bbls 2½-in, acid 10,000 gals 4987-5028 ft.

Honolulu's Igoe-Smith 45, nwc lab 14, leag 56, Oldham CSL, flow 1148 bbls 2½-in, acid 10,000 gals 4988-5027 ft.

Honolulu's Igoe-Smith 46, swc lab 7, leag 56, Oldham CSL, flow 872 bbls 2½-in, acid 10,000 gals 4958-5000 ft.

Honolulu's Igoe-Smith 47, sec lab 14, leag 56, Oldham CSL, flow 931 bbls 2½-in, acid 10,000 gals 4998-5035 ft.

Texas Co.'s Mallet 5-F, sec lab 14, leag 51, Scurry CSL, flow 1217 bbls cas, acid 10,500 gals 5010-55 ft.

Ector County: North Cowden—Texas Co.'s Holt 24, 1731 ft from s and 440 ft from w T&P 12, blk 43, T-1-N, pump 418 bbls, shot 140 qts 4360-4420 ft.

T. P. Coal & Oil Co.'s Holt 2, accnt 2, c nw sw T&P 9, blk 43, T-1-N, flow 1127 bbls ½-in, shot 720 qts 4519-4749 ft.

T. P. Coal & Oil Co.'s Holt 3, accnt 2, c se sw T&P sec 9, flow 873 bbls ½-in, shot 680 qts 4554-4729 ft.

Gaines County: Cedar Lake—Stanolnid's Hall 2, c nw ne D&W sec 8, blk H, s&f 235 bbls cas, shot 720 qts 4600-4735 ft, td 4760 ft.

Hockley County: Slaughter—Honolulu's Slaughter 32-B, nwc lab 77, leag 37, Zavalla CSL, flow 961 bbls 2½-in, acid 10,000 gals 4930-5020 ft.

Honolulu's Slaughter 33-B, nwc lab 52, leag 37, Zavalla CSL, flow 1375 bbls 2½-in, acid 10,000 gals 4895-4980 ft.

Howard County—Fleming Oil Co.'s Jones 2, nw sw sw T&P 15, blk 30, T-1-S, pump 227 bbls, acid 2000 gals and shot 640 qts 2750-2891 ft.

Pecos County: Abell—Magnolia's Francisco 3, c lot 12, H&TC 4½, blk 3, flow 41 bbls 36.4-gr oil, plus 55 per cent bs&w, flow valves, acid 11,000 gals Ellenburger 5830-5920 ft.

Pecos County: Walker—Cardinal Oil Co.'s White-Baker 10-J, 2406 ft from s and 1652 ft from e lines GC&SF 84, blk 194, flow 106 bbls 1-in, shot 100 qts 2146-74 ft.

Ward County—Jas. H. Snowden-L. H. Freedman's Wristen-Gulf 5-A, 1980 ft from nw and sw lines H&TC 18, blk 5, elev 2500 ft, pump 328 bbls, acid 3000 gals 2467-2594 ft, td 3007 ft.

Winkler County: Keystone—Sid W. Richardson-Perry Bass' Bashara 5, 330 ft from n and 1320 ft from e lines PSL 21, blk 77, flow

PATTERSON-BALLAGH
SUCKER ROD WIPERS

All sizes of rods from ⅝" to 1⅛".

Cast Steel Body.

Body Threaded for 3"—8-thread API line pipe.

Bushed to 2½" and 2".

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595 bbls ¾-in, shot 475 qts 3280-3430 ft, td 3464 ft.

Sid Richardson & Bass' Bashara 4-B, swc PSL 11, blk 77, flow 542 bbls 41/64-in, shot 440 qts 3330-3470 ft, td 3486 ft.

Standard of Texas' Baird 36-13, 2620 ft from w and 660 ft from s PSL 13, blk B-3, flow 297 bbls cas, shot 350 qts 3130-3272 ft, td 3329 ft, pb to 3280 ft.

Standard of Texas' Baird 41-12, 660 ft out nec w 440-ac PSL 12, blk B-3, flow 272 bbls cas, shot 300 qts 3275-3392 ft, td 3400 ft.

Winkler County: Weiner—J. R. Sharp et al's Halley-Texaco 1, se sw nw PSL 7, blk B-11, flow 287 bbls ½-in natural, sand 3035-3152 ft.

Yoakum County: Wasson—T. P. Coal & Oil Co.'s Bennett 34, c sw nw sec 631, flow 387 bbls 2-in, acid 10,000 gals 5185-5256 ft.

OLD WELL DEEPENED

Gaines County: Seminole—Ohio's Averitt 2, c sw ne W. T. 228, blk G, otd 5089 ft, flow 1039 bbls ½-in natural, td 5249 ft.

WEST TEXAS WILDCAT COMPLETIONS

Crane County: Failure—Texas Co.'s University 1-K, c nw se sec 20, blk 30, elev 2620 ft, abnd 3600 ft.

Pecos County: Failure—Anderson-Prichard Oil Corp.'s Ogilvie 1, c nw nw T&SL 30, blk 140, elev 2559 ft, bsse Permian-top detrital 5230 ft, Simpson 5675 ft, abnd 6015 ft.

Ward County: Failure—Magnolia's Sealy 1-60, c sw sw GMMB&A 60, blk F, elev 2647 ft, brown lime 2772 ft, Yates sand 2929 ft, sul w 2913-29 ft, abnd 3277 ft.

Yoakum County: Failure—Dunigan Bros.-Brahaney's Henard 1, c ne ne sec 267, blk D, elev 3693 ft, anhydrite 2370 ft, Yates 3120 ft, brown lime 4130 ft, San Anders 4520 ft, abnd sul w 5351-53 ft.

OLD WELL DEEPENED

Pecos County: Wentz pool discovery—Gulf & L. H. Wentz's Millar 2, c nw se H&GN 43, blk 11, elev 2534 ft, Ellenburger 4146 ft, otd 4383 ft, pump 165 bbls oil, plus 35 per cent bs&w, granite 4493-93½ ft, td, pb to 4447 ft.

WEST TEXAS WILDCAT STARTS

Gaines County—Texas Co.'s Robertson 1, c nw ne PSL 25, blk A-21, dk for 8000-ft test.

Hockley County—Bruce K. McKague et al's Goodpasture 1, 467 ft from s and 750 ft from e lines lab 16, leag 17, Wichita CSL sur, 4½ mi se Levelland, lcn.

Pecos County—Cardinal Oil Co.'s Lowery-Wilson 1, 2322 ft from s and 1270 ft from e lines TC c 20, blk Z, lcn.

L. H. Choate & C. W. Brown et al's University-Humble 1, c sw ne sec 14, blk 20, lcn.

West Central Texas

Coker Confirmation Well Showing Favorably

Offset to Donnell pool discovery, Northern Stephens County, encountered water in Mississippian and another well testing. Callahan County discovery making cut oil. Confirmation test for Coker pool shows favorable on drill-stem test.

Stephens County: Texas Pacific and Sinclair Prairie's Connell 1-A, southwest offset to Christie Bros.' 4215-ft lime discovery, encountered hole full water 4417-18 ft in Mississippi, topped 4405 ft, elevation 1080 ft; to perforate possible gas zone in Bend 3891-99 ft. Christie Bros.' Donnell 1, northeast offset their discovery, also missed projected pay, entered Mississippi 4335 ft, elev 1072 ft, and swabbed dry when tested 4338-50 ft; will acidize.

Callahan County: Ben Dansby, Jr., et al's Ramsey 1, 3 miles northeast of Putman and in shallow oil pool, tested 2 bbls fluid hourly, averaging 50 percent oil, after acidizing with 2000 gals at 3224-77 ft in Bend, topped 3216 ft, elev 1627 ft.

Coleman County: Anderson-Prichard's Coker 1, west offset to Coker pool discovery, running pipe after drill-stem in Morris sand 3030-43 ft.

WEST CENTRAL TEXAS COMPLETIONS

Brown County—Hightower O & R Co.'s Buchner Orphanage 1-C, Wm. Iron sur 52, 3,000,000 gas, acid 5000 gals 1433-88 ft, td 1498 ft.

Callahan County: Wildcat — Rhodes Dr. Co.'s Seale 1, nec sw Lewis Johnson sur 252, elev 1779 ft, abnd 1165 ft.

Coleman County: Lewis Prod. Co.'s Bush 1, sec lot 22, San Augustine sur, Jim Ned pool, elev 2030 ft, Morris sand 3466 ft, Bend 4112 ft, abnd 4270 ft.

Jones County—Fain-McGaha and Sinclair Prairie's Carlson 1, 330 ft from s and 1040 ft from e BBB&C 189, abnd 3330 ft.

Shackelford County—Kittery Oil Co.'s Elliott 1, c ne sw LAL 9, elev 1428 ft, flow 11 bbls 38.8-gr oil and 640,000 gas, acid 2000 gals Strawn 2692-2703 ft, td 2911 ft.

Roeser-Pendleton and Continental's Cook 12-A-117, ET 117, pump 119 bbls, sand 1706-15 ft.

Taylor County: Wildcat—Tom B. Medders et al's Moore 1, se sw se T&P 74, blk 19, elev 2000 ft, Hope 2931 ft, abnd hfw 3148 ft.

WILDCAT STARTS

Callahan County—Francisco & Miles' J. M. Isenhower 1, 1100 ft from s and 1840 ft from e lines TE&L 2978, sp.

Coleman County—Anzac Oil Corp. et al's J. M. Hinds 1, 4970 ft from n and 467 ft from e lines Miquet Baniles sur 670, Coleman townsite, lcn.

Taylor County—Butler-Horne Drl. Co. et al's C. H. Hudson 1, nec lot 3, J. A. Nabors sur 8, lcn.

Texas Panhandle

Dallam County Test To Try Ordovician

Northwest corner Texas Panhandle assigned first Ordovician prospect. Sherman County wildcat missed gas zone in Permian, and another test authorized for block.

Dallam County: Pure's Federal Land Bank (Houston) 1, NW SW Sec 17, Blk 7, F.D.W. subdivision, Capitol Syndicate Lands, scheduled to drill through Ordovician, unless granite is encountered. Pure and Gulf each have 15,000-acre adjoining blocks that have been

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core-drilled, and the latter is sharing the cost of the deep test. Gulf completed an Ordovician failure last January to the northeast and in southeastern Cimarron County, Okla., topping Ellenburger 5995 ft.

TEXAS PANHANDLE COMPLETIONS

Gray County — Phillips' Simpson - Pan 12, I&GN 140, blk 3, pump 204 bbls, shot 300 qts 3225-81 ft, lime 3210-83 ft.

Phillips' Thompson-Pan 9, I&GN 126, blk 3, pump 319 bbls, shot 300 qts 3216-94 ft.

Phillips' Valmert (south)-Pan 11, I&GN 140, blk 3, pump 195 bbls, shot 270 qts 3186-3270 ft.

Hutchinson County — J. M. Huber Corp.'s Burch-Weatherly 12, A&B sec 24, blk Y, pump 258 bbls, acid 1000 gals, td 3115 ft.

Phillips' Whittenburg 68, H&TC 58, blk 46, pump 187 bbls, shot 360 qts 2667-2759 ft.

Dave Rubin et al's Merchant 2, H&TC 38, blk 47, pump 43 bbls oil, acid 1000 gals 2417-2810 ft, td 2817 ft.

TEXAS PANHANDLE WILDCAT STARTS

Dallam County—Pure's Federal Land Bank (Houston) 1, 660 ft from w and 3097 ft from n lines sec 17, blk 7, F.D.W. subdiv of Capitol Syndicate Lands, mim for sub-Ordovician test.

Sherman County—L. R. Hagy-Harrington-Marsh's Lee Bivins-Coldwater 1, 2652 ft from s and 2670 ft from e lines GH&H 21, blk B-3, rur.

North Texas

Montague Deep Well Increases After Acid

Recent Montague County deep discovery boosts flow after reacidizing. Joy pool widened to east by Mississippi completion. Jack County prospect passes up nominal show in Bend.

Montague County: Sinclair Prairie's Jones 1, discovery on the Forestburg prospect and deepest producer in the district, stepped up its flow to 888 bbls 42-gr oil on 9-hr open tubing gauge, gas volume rated 2,000,000 ft daily, after reacidizing with 8000 gallons. Production from Marble Falls 7176-7325 ft, plugged back from 8696 ft. Well rated at only 3 bbls oil hourly on swabbing test, then recorded flow 220 bbls on 3-hour open tubing gauge when given initial treatment of 2000 gallons acid. Improved showing of this discovery assures more development for area.

Clay County: Shell's Clark 1, east of two Mississippi wells in Joy pool, flowed 376 bbls oil and 58 bbls water in 7½ hours after using 1000 gallons acid in broken saturation 5954-6087 ft. The well gauged 446 bbls oil and 133 bbls water in 13 hours through open tubing when reacidized with 3000 gallons, and is due to be plugged back because of increase in water.

Jack County: Joe A. Worsham et al's Hensley 1, 2½ miles southwest of Worsham-Steed 4700-ft sand discovery, passed up show gas in sandy-lime 4845-55 ft, and was drilling shale 4960 ft.

Wichita County: Grace et al's Dorris 1, situated within sparsely developed Strawn production on east edge K-M-A field, flowed 10 bbls oil hourly on preliminary gauge after 120-quart nitro shot 4103-50 ft.

NORTH TEXAS COMPLETIONS

Archer County: Wildcats — Bridwell Oil Co.'s Edwards 1, 330 ft from n and 990 ft from e lines blk 14, Geo. Bruner sur, abnd 2291 ft.

Craig & Wilson's J. Seay 1, nwc blk 109, J. W. Harris subdiv, Gunsight lime 1353-58 ft, abnd 1421 ft.

Clay County: Joy — L. T. Burns et al's Wynn 5, 1650 ft out nec sec 34, H. Williams sur, Bend 5430 ft, Barnett shale 5865 ft, Mississippi 6040 ft, Ellenburger 6107 ft, abnd 6213 ft.

Clay County: New York City—Shell's Polzin 1, 1113 ft from s and 330 ft from e T&NO 4, Bend 5940 ft, Mississippi 6318 ft, Viola 6395 ft, flow 344 bbls oil and 32 bbls water (accumulation) 2-in, acid total 14,000 gals, final Mississippi perf 6310-35 ft, td 6445 ft.

Shell's Willis 3, 686 ft from n and 1386 ft from w T&NO 5, Bend 5922 ft, Mississippi 6345 ft, Viola 6398 ft, Simpson 6428 ft, abnd 6734 ft.

Jack County—Kirk Johnson et al's Shawver 1-A, 467 ft out swc east 320 ac of se¼ J. Turner sur A-609, abnd 3038 ft.

Montague County: Wildcats—D. C. Allen et al's Robinson 1, se se nw Limestone CSL 3, abnd 901 ft.

Sinclair Prairie's I. M. Jones 1, 467 ft fr nw and 1400 ft from sw lines 166.8-ac tr, I. Singletary sur A-707, 1¼ mi northeast Forestburg, new pool discovery, Marble Falls 7173 ft, Barnett shale 7408 ft, Viola 7981 ft, Simpson 8147 ft, Ellenburger 8630 ft, flow 1712 bbls 40-gr 2½-in tub open, acid 2000 gals Marble Falls 7173-7236 ft, td 8696 ft, pb to 7325 ft.

Continental's P. Mueller 1, 467 ft from se and sw lines of ne 116.86-ac tr, P. Hamilton sur A-335, discovery for Salona prospect, Bend 5992 ft, Simpson 6820 ft, flow 369 bbls 45.8-gr oil natural ¾-in, Simpson sand 7218-23 ft.

Wichita County: Wildcat—Ted A. Norwood et al's Doyle 1, 1405 ft from s and 1450 ft from w lines Geo. Wheelwright sur A-320, abnd 1251 ft.

Wichita County—Hanlon & Buchanan, Inc.'s Burnett 14-A, H&GN 34, A-435, abnd 886 ft.

Wichita County: K-M-A — Tide Water's Mangold 2-E, 4455 ft from s and 400 ft from e lines blk 38, P. Castleman sur, non-commercial in Ellenburger, flow 25 bbls 2-in, shot 180 qts Strawn 3785-3858 ft, td 4415 ft, pb to 3900 ft.

Wichita County: K-M-A Ellenburger—Tide Water's Ferguson 7-E, 2200 ft from n and 415 ft from e lines blk 4, W. H. Spillers sur, flow 904 bbls ¾-in, acid 3000 gals Ellenburger 4282-4315 ft.

Wilbarger County: Rock Crossing-Ellenburger — Phillips' Waggoner 218, se sw sw H&TC 46; blk 4, flow 632 bbls natural ¼-in, 3808-24 ft.

Wilbarger County: Potts — Consolidated et al's Potts 3-D, 1980 ft from e and 3300 ft from s lines H&TC 4, blk 7, K-M-A lime 3880 ft, Bend 4111 ft, Mississippi 4529 ft, abnd 4557 ft.

Young County—Cosden Pet. Corp.'s Sewell 3-B, W. J. McDowell sur A-1621, 35,000,000 gas and 30 bbls distillate 2-in, acid 2000 gals, perf 3956-76 ft, td 4176 ft, pb to 4023 ft.

Panhandle et al's Allar-Hunt 2, TE&L 3409, flow 576 bbls 2-in, Strawn 2764-67 ft, td 2770 ft.

NORTH TEXAS WILDCAT STARTS

Montague County—Seitz-Comegys & Seitz, Inc.'s Graves 1, sec ne 246-ac tr, E. B. Wooten sur A-480, lcn 2600-ft test.

Throckmorton County — Amerada's A. E. Williams 1, 660 ft from n and 1212 ft from e lines Wm. Cassell sur A-184, 2½ mi sw Spring Creek, rur 5500-ft Ordovician.

Butler-Horne Drilling Co.'s M. Durham-Humble 1, 1020 ft from n and 845 ft from w lines TE&L sec 1627, lcn 1000-ft test.

Garlitz & Subbie's Monohans 1, 660 ft out swc TE&L sec 2229, 2 mi s Woodson, lcn.

Trumter Pet. Co.'s J. T. Davis 1, 835 ft from s and 980 ft from e lines blk 94, Comanche Indian Reserve, lcn.

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Trading Post Section, THE OIL WEEKLY
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East Texas

Upshur County Wildcat Abandoned in Woodbine

Upshur County wildcat is failure, district has four active deep wildcats; Limestone County's second Smackover lime project abandoned in Schist.

Wood County: Amerada's Kennemer 1, eight miles west of Winnsboro and scheduled lower Trinity project, drilling shale 6192 feet, having based Georgetown lime below 6100 ft. Two wildcat failures for the county included Paadakis et al's Old 1, deepened from 5301 ft to Woodbine water sand 5528-6211 ft and Arthur Klemm et al's Bellamy 1 abandoned at 4610 ft.

Upshur County: R. W. Burnett et al's Reynolds 1, 5 miles northeast of Big Sandy and East Texas field outpost, tested water in Woodbine 3840-75 ft and abandoned 3930 ft.

Cass County: C. C. Gilger's Grogan 1, Watson survey, second well for this new area near Lodi, north of Rodessa field, Marion County, extended production 1500 feet north with flow of 280 bbls from Gloyd at 6004-12 ft. Gilger cleared location for west offset, Cass School Land 1, and south of discovery, John Messenger's Benefield and Singleton 1, Earl Hollandsworth was moving in at Benefield and Singleton 1. Phillips started at Benefield and Singleton 1 on east.

EAST TEXAS FIELD COMPLETIONS

Anderson County: Cayuga—Carter - Gragg Oil Co.'s Royall-Cone 2, 1290 ft from w and 2890 ft from s lines T. Bristow sur, flow 209 bbls natural ¼-in, Woodbine perforations 4061-67 ft, td 4179 ft.

Cass County: Kildare—C. C. Gilger's Grogan, Watson survey, perf 6004-12 ft, flow 280 bbls, 5/64-in, cp 925, tp 410, td 6050 ft.

Wood County: Hawkins—Humble's E. Dagnell 3, 141.47-ac lse, W. Parker sur, flow 323 bbls ¼-in, Woodbine perf 4579-85 ft, td 4677 ft.

Humble's Faulk 3-B, 1400 ft from s and 467 ft from w of 107.54-ac lse, Wm. Herrington sur, flow 215 bbls ¼-in, perf 4859-71 ft, td 4914 ft.

DRY HOLE DEEPENED

Henderson County: Opelika—Lone Star and Shamrock (was Tide Water et al's) Lewis 1, 1000 ft from w and 837 ft from s of 136½-ac lse, J. K. Stokes sur, otd 8465 ft, 46,500,000 gas, with 49.45 gals distillate per million, acid 5000 gals Glen Rose (Rodessa) perf 8338-52 and 8417-33 ft, td 8471 ft.

Southwest Texas

Refugio Outpost Produces From 1000 Feet Deeper

The decline in Southwest Texas drilling has had some effect on the discovery rate, but new fields and new horizons continue to be uncovered along this trend.

Wilson County: Holland Oil Co.'s Boysen 1, 5½ mi ne Poth, tested Wilcox sand 4155-90 ft, open hole 4177-4245 ft, but results not satisfactory, squeezed off and will perforate 4082-4100 ft where drill-stem test indicated probable producer.

Webb County: Magnolia's DCRC 1, Lge 4, 16 mi sw Freer, dr to 2638 ft, took sidewall cores in sand by electric log 1952-70 ft, ran 7-in to 2022 ft, testing. Gulf, Sun and Texas have holdings near test.

Starr County: Sun's Frost 2-A, dr to 5000 ft, perf 4181-84 ft and 4187-91 ft, cleaning; apparently new field 13 mi east of Rio Grande City.

Sun's Montalvo 1-A, between Kelsey and Sun fields, flowing oil and gas from 6087-6131 ft in Jackson sand.

Refugio County: Sunray Oil Co.'s Mitchell 6, se flank Refugio, perf 8430-45 ft, flowing 225 bbls 58-gr condensate, 3,000,000 cu ft gas, ¼-in choke. Opens new sand 1000 ft deeper than present deepest pay.

Jim Wells County: Kilgore Dev., Inc.'s Stratman 1, Casa Blanca gr, 3 mi e Orange Grove, perf 4962-82 ft, flowing gas and odor of condensate to open new field.

SOUTHWEST TEXAS FIELD COMPLETIONS

Jim Hogg County: Colorado—Humble's King-Colorado 66-B, Las Moretas gr, 14.47 bbls 46.5-gr, 3/16-in, 320 lbs cp, gas/oil ratio 140/1, sand 3136 ft, 4½-in 3125 ft, td 3141 ft.

Humble's King-Colorado 68-B, Las Moretas gr, 129.6 bbls 46.5-gr, 3/16-in, 180 lbs tp, 580 lbs cp, gas/oil ratio 185/1, sand 3109 ft, 5½ 3109 ft, td 3119 ft.

Starr County: Sun—Humble's Montalvo 12, Los Retachez gr, abnd 4646 ft.

Sun's C. L. de la Garza 4, Sh 11, La Sal Colorado gr, gas sand 4450-98 ft, abnd 4502 ft.

SOUTHWEST TEXAS WILDCAT COMPLETIONS

Duval County: Failure—Guy I. Warren's Clara Driscoll 3, sec 56, 4 mi n Driscoll, abnd 3914 ft.

Jim Hogg County: Failure—Boller & Rutledge's M. E. Premont 1, sec 178, 6 mi e Cuevitas, abnd 4542 ft.

Starr County: Failure—Cottonwood Corp.'s Z. Salinas 1, LaSacatosa gr, 30 mi nw Rio Grande City, odor 1613-21 ft, abnd 2207 ft.

Webb County: Failure—W. H. Holland's J.

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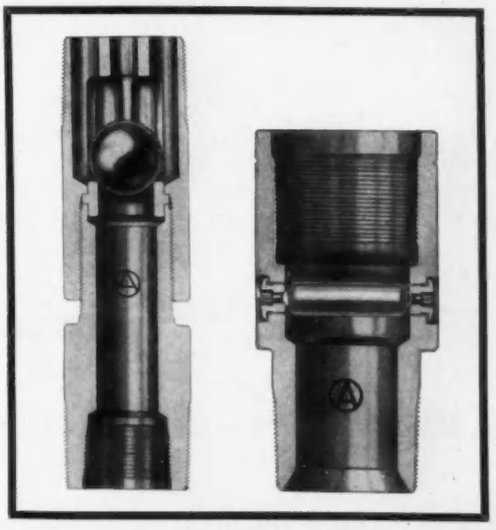

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SOUTHWEST TEXAS WILDCAT STARTS

Duval County—Argo Oil Corp's M. E. Carroll 1, 2777 ft n, 550 ft w lines sh 7, Carrera gr, Rios pros, lcn 6800-ft test.

Guy I. Warren's Clara Driscoll 4, c sw nw sec 45, 6 mi n Driscoll field, mi 4000-ft test.

Starr County—Humble's Coates 1, 5940 ft n, 7260 ft w lines 3840-ac lse, Hamilton sur 623, 20 mi n Rio Grande City, lcn 4500 ft test.

Zapata County—Dulup Oil Co.'s Garza 4, 660 ft nw and sw lines blk, Douglas sub, Comitas gr, 8 mi s Escobas, 2000-ft test.

LOWER GULF COAST FIELD COMPLETIONS

Bee County: South Caesar—Atlantic's Grissom 1-B, Gant sur, 2173 ft se fld, Carrizo 6585 ft, abnd 6841 ft.

Hidalgo County: Nichols—Phillips' Yturria 1, por 44, abnd 4504 ft.

Jackson County: Looney's Branch—W. S. Boyle et al's Hofner 1, Angle sur, ½ mi ne outpost, 148.5 bbls 27.2-gr, 9/64-in, 1500 lbs tp, 2050 lbs cp, gas/oil ratio 700/1, perf 5412-17 ft, sand 6406 ft, td 5574 ft.

Jackson County: Maurbro—Humble's A. A. Egg 1-B, blk 6, B. J. White sur, 179 bbls 27.2-gr, ¼-in, 100 lbs tp, 500 lbs cp, 10 per cent sw, gas/oil ratio 195/1, sand 5235 ft, 5½-in 5225 ft, td 5245 ft.

Jackson County: N. LaWard—Glenora Oil Co.'s Olvovsky-Fee 3, 1½ mi e disc of 5600-ft sand, 93.98 bbls 28.6-gr, ¼-in, 50 lbs tp, 100 lbs cp, gas/oil ratio 758/1, perf 5635-40 ft, sand 5622 ft, td 5660 ft.

Jackson County: W. Ganado—Pure's Niebuhr 2, W. Menefee sur, 99.44 bbls 25.4-gr, 8/64-in, 500 lbs tp, 90 lbs cp, gas/oil ratio 280/1, sand 4743 ft, pb 4771 ft and perf above, td 4825 ft.

Nueces County: Stratton — Mid-Continent's Martindale 2, Sec 200, 115.44 bbls 42.5-gr, ⅛-in, 825 lbs tp, 1225 lbs cp, gas/oil ratio 852/1, perf 6570-84 ft, sand 6570 ft, td 6714 ft.

Refugio County: McFaddin—R. R. Rutherford's Fagan 8-C, 74.49 bbls 30.8-gr, 3/32-in, 700 lbs tp, 890 lbs cp, gas/oil ratio 325/1, perf 5664-74 ft, td 5850 ft.

Refugio County: Refugio—Hewitt & Dougherty's Reilly 1-B, lot 1, blk 6, 100 bbls 40-gr, ⅛-in, 470 lbs tp, 1475 lbs cp, gas/oil ratio 658/1, perf 5665-73 ft, sand 5665 ft, td 6280 ft.

Victoria County: E. Placedo — Moran Oil Co.'s Mitchell 2, E. Benavides sur, 88.24 bbls 38.4-gr, 3/32-in, 950 lbs tp, 1075 lbs cp, gas/oil ratio 300/1, perf 6379-83 ft, td 6902 ft.

Stanolind's Vandeberge & Hill 16, E. Benavides sur, 131.4 bbls 39-gr, 7/64-in, 1150 lbs tp, 1100 lbs cp, gas/oil ratio 506/1, perf 6870-73 ft, sand 6866 ft, td 6873 ft.

Victoria County: Placedo—Superior's Brandl 3, Wm. Rupley sur, apparently merges old Placedo deep pay with E. Placedo, 137.92 bbls 38.8-gr, ⅛-in, 675 lbs tp, 550 lbs cp, gas/oil ratio 665/1, perf 6868-70 ft, td 6920 ft.

LOWER GULF COAST WILDCAT STARTS

Bee County—Smith & Story, Inc.'s McNeill 1, 660 ft w Medio crk, 3544 ft swl 696.31-ac lse, C. Molina gr, 8 mi e Beeville, lcn 4500-ft test.

Nueces County—Gillespie & Son's J. Bolland 1, 660 ft e, 1980 ft s lines blk 8, sec 5, Petronilla ranch, 4½ mi se Driscoll field, lcn 7500-ft test.

San Patricio County—Buescher & Clarkson's Willis 1, 660 ft n and e lines lot 7, sec 20, Taft sub, 5½ mi ne Taft, sp 7000-ft test.

Humble's A. Kastner 1, 660 ft s and w lines nw sec 36, Pauls sub, 6 mi n Edroy, lcn 6500-ft test.

SOUTH CENTRAL TEXAS FIELD COMPLETION

La Salle County: Failure — Quintana Pet. Co.'s R. W. Kostroun 1, E. Lane sur 6, O'Connor sub 5, 5 mi nw Fowlerton, abnd 5268 ft.

Texas Gulf Coast

Wells Extend Fig Ridge And Chocolate Bayou Fields

Extend Fig Ridge and Chocolate Bayou; gas production opened at Citrus Grove; wildcats projected.

Chambers County: Sun made another major extension to Fig Ridge field with Pipkin 3 south of production; perforated in a 70-ft section in Frio and flowed 170 bbls 35.7-gravity oil, ⅛-in choke, with 1250 pounds tubing pressure and 1150 pounds on casing, gas-oil ratio 680-1.

Brazoria County: Stanolind has recompleted Houston Farms 1 to extend production westward at Chocolate Bayou. Perforated at 11,370-410 ft, the well flowed 157 bbls of high-gravity oil, ¼-in choke, 5,104,000 cu ft gas, showing 3740 pounds tubing pressure. Originally perforated at 11,475-523 ft, the well flowed 60 bbls distillate with a large amount of gas.

Matagorda County: Pure opened new gas production at Citrus Grove with LeTulle 1, Erastus Yeamans survey, flowing 785,000 cu ft through 7/64-in choke from 4210-25 ft.

TEXAS GULF COAST FIELD COMPLETIONS

Brazoria County: Chocolate Bayou—Stanolind's Houston Farms Development 1, 100-ac tr, Hooper & Wade sur A-428, perf 11,370-410 ft, flow 157 bbls high-gravity, ¼-in, tp 3740, 5,140,000 gas, extends field westward, td 11,803 ft.

Harris County: Dyersdale — H. C. Cockburn's George Burkitt 28, 503 ft fr s and 2739 ft fr wl 1300-ac lse, James Bundick sur, flow 565 bbls ¼-in, tp 510, cp 390, gor 213-1, td 4080 ft.

Jefferson County: Stowell—Glenn H. McCarthy's Stewart-Blum 1, 40-ac unit, lots 1 and 2, ne nw TNO 157, perf and flow 437 bbls 33.4-gr, 3/16-in, tp 1500, cp 2000, gor 820-1, td 9505 ft.

Polk County: Goodrich — Pan America's Texas Long Leaf 3-B, 1267-ac tr A-Viesca 7-Lge grant, perf 4024-33 ft, pump 46 bbls 35.6-gr oil, 29 bbls salt water, td 4062 ft.

Tyler County: Ramer Island—American Republics-Houston's Cushing Fee R-2, 12,390 ft fr w and 3547 ft fr nl Theophilus Cushing league, abnd 8453 ft.

Wharton County: Withers—F. W. Michaux's Pierce Est 21-A, 2253 ft fr sel Charles Howard sur, flow 83 bbls 10/64-in, tp 925, cp 175, td 5402 ft.

F. W. Michaux's Pierce Est. 62-A, 5987 ft fr sel Charles Howard sur, perf 5316-21 ft and 5316-21 ft, flow 181 bbls, 10/64-in, tp 550, cp 525, td 5355 ft.

TEXAS GULF COAST WILDCAT COMPLETIONS

Grimes County: Failure—H. C. Cockburn & Temple Hargrove's Gayle 1, Plantersville area, 103-ac tr C. B. Stewart sur, Jackson 3279 ft, Hockley 3356 ft, Cockfield 4147 ft, Wilcox 7298 ft, abnd 8720 ft.

Jefferson County: Failure—Stanolind's Gladys City 105, deep test north flank Spindletop, 400-ac lse John A. Veatch sur, perf 4752-90 ft, pump 7 bbls 24.7-gr, temporarily abnd 4809 ft.

Wharton County: Failure—H. C. Cockburn's Moers 1, 515-ac tr C. Hadden sur, Lane City area, abnd 6715 ft.

TEXAS GULF COAST WILDCAT STARTS

Harris County—British-American's Street 1, Pearland area, 400-ac tr H. H. M. Hunter sur A-76, moving in materials. 6500-ft test.

Hardin County—American Republics-Houston Oil's Hampton 1, West Silsbee area, 3648-ac tr, A. Hampton league, lcn.

Montgomery County—Superior's Foley 1, Deering prospect, 2651 ft fr n and 2650 ft fr e l 1000-ac lse Henry Dunman ⅓-rd league A-163, lcn Wilcox test.

South Louisiana

New Producing Sands Opened in Three Fields

New sands opened in three fields: Starks, Calcasieu Parish, Erath, Vermilion Parish, and Chacahoula, La-Fourche Parish.

Calcasieu Parish: W. T. Burton has opened a new sand on northwest flank Starks dome with Lutcher-Moore 5 flowing 157 bbls 35.5-gr oil through ¼-in choke from perf 5344-57 ft in Miocene. Horizon is the second to be opened on this dome this year. The producer is 350 ft southeast of Burton's Lutcher-Moore 4 which flowed from 5990-6020 ft in basal Frio in January, 1942. Burton is drilling below 3500 ft in Industrial Lumber 6 across dome on southeast flank.

Vermilion Parish: Phillips has completed a deep producer at Erath. Although Humble found the same sand in another well, it is not yet completed. Phillips' Broussard 1, sec 28-13s-4e, perf at 11,127-150 ft and 11,160-172 ft,

Little Things Still Count

A lot of old jobs are waiting for someone to do them these days. As compared with the headlines in the newspapers everything else seems unimportant. But that's the wrong attitude. The need for people who can and will do ordinary things extraordinarily well grows with the war effort. We worry too much about the post-war period and concentrate too little on the work at hand. Worry never won a war—but it could lose one. The sanity, success and solvency of the nation depends on doing today's work today, and with relish.

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and flowed 136 bbls through ¼-in choke with 3850 pounds tubing pressure and 1000 pounds on casing. Erath thus becomes one of the deepest producing fields in South Louisiana.

LaFourche Parish: Sun Oil Co. has opened another sand on west flank Chacahoula dome. Cypress 6, 75-15s-15e, flowed 137 bbls through ⅛-in choke from perf 7790-7825 ft in Miocene. Sun has projected another test on north flank, Levert Land Co. 1.

SOUTH LOUISIANA FIELD COMPLETIONS

Evangeline Parish: Ville Platte—Continental's Vidrine 1, fr w cor sec 42 go se alg swl 454 ft, thence at ra 480 ft in 42-4s-2e, perf and flowed 221 bbls 10/64-in chk, tp 1250, cp 1950, td 10,190 ft.

Plaquemines Parish: Venice—Tide Water's Buras Levee 15, 2075 ft s and 105 ft e of nw cor 23-21s-30e, perf 10,293-305 ft, flow 235 bbls ⅛-in, tp 1800, td 10,353 ft.

St. Charles Parish: Paradis—Texas Co.'s LLE-Paradis 27, 1982 ft n and 3300 ft e of sw cor 5-14s-20e, perf 10,390-420 ft, flow 498 bbls, 3/16-in, cp 1175, td 10,428 ft.

St. Landry Parish: Lewisburg—Stanolind's Wimberly 1, 2645 ft nw alg swl sec 79 fr se cor thence 650 ft ne at ra in 79-7s-3e, abnd 10,000 ft.

St. Martin Parish: Lake Chicot—Amerada's State-Lake Chicot 3-411, 1985 ft s and 820 ft w of nw c 31-11s-10e in 25-11s-9e, perf 8170-80 ft, flow 249 bbls 57-gr, ⅛-in, tp 1425 ft, td 11,004 ft.

Vermilion Parish: Erath—Humble's Vermilion School Board 2, 2821 ft n alg wl sec 16 fr sw cor, thence e'ly at ra to said wl 1432 ft in 16-13s-4e, perf 11,042-50 ft, flow 103 bbls 53.7-gr 22 hrs, 13/64-in, 11,352 ft.

SOUTH LOUISIANA WILDCAT COMPLETIONS

Calcasieu Parish: Starks New Pay—W. T. Burton's Lutcher-Moore 5, 1779 ft e and 707 ft s of nw cor 19-9s-12w, perf 5344-56 ft, flow 274 bbls 35.5-gr, 10/64-in, tp 500, cp 500, gor 275-1, td 5539 ft.

Iberia Parish: Failure—Amerada's Williams 1, se Bayou Pigeon field, 660 ft n and w of se c 19-12s-11e, abnd 11,933 ft.

SOUTH LOUISIANA WILDCAT STARTS

Assumption Parish—William Helis' Dugas & LeBlanc 1, se flank Napoleonville dome, 990 ft s and e of nw cor 55-12s-13e, lcn.

Calcasieu Parish—Gulf's Hunter 1, ne flank Edgerly, 560 ft n and 760 ft e of se cor 22-9s-11w, bld road.

Evangeline Parish—Humble & Continental's Pardee 1, Redell area, 990 ft n and 330 ft w of se c 24-4s-2w, lcn.

Vermilion Parish—Humble's Louisiana Land & Fur 1, Chenier au Tigre area, se 12-15s-1e, lcn.

North Louisiana

Deep Test at Bellevue Getting Ready to Start

Bossier Parish Smackover-lime wildcat starts. Winn Parish wildcat drills ahead after gas show. Natchitoches Parish wildcat shows salt water on first test. North outpost at Haynesville takes production near Arkansas line.

Bossier Parish: Phillips' long-awaited deep Smackover-lime test on the south flank of the shallow Bellevue field, Kendrick 1, is building derrick.

Claiborne Parish: Ohio's north outpost at Haynesville, Waller Acct. 3-p 1, came in flowing 1056 bbls per day and extending production toward Arkansas line.

NORTH LOUISIANA COMPLETIONS

Claiborne Parish: Haynesville—Ohio's J. T. Waller Acct. 3-P 1, 2-23-8, Pettit porosity 5326, perf 5326-44, acidized 4000 gals, flow 1056 bbls, 24/64-in, tp 400, cp 525, td 5450 ft.

Mid-States Oil Corp.'s Hearne 1, 22-23-8, porosity 5275, perf 5275-5356, acidized 5000 gals, flow 939 bbls, 20/64-in, tp 600, cp 775; td 5400 ft.

Ohio's Camp Taylor Unit P-1, 15-23-8, perf 5251-5326, acidized 5000 gals, flow 864 bbls, 30/64-in, cp 675, tp 510, td 5380 ft.

LaSalle Parish: Hemphill—Placid Oil Co.'s Graham 1, pumping 92 bbls.

LaSalle Parish: Little Creek—Arkansas Fuel's Maxwell 1, pump 99 bbls.

LaSalle Parish: Nebo—H. L. Hunt's Goodpine 92, pump 198 bbls.

NORTH LOUISIANA WILDCAT START

Bossier Parish: Bellevue—Phillips' Kendrick 1, 22-19-11, building derrick and roads.

ARKANSAS COMPLETIONS

Lafayette County: Midway—Barnsdall's Powell 1, 10-15-24, porosity 6420 ft, flowing into tanks, no gauge, td 6490 ft.

Gene Goff's McClain 1, 14-15-24, abnd 6500 ft.

Union County: Mount Holly—Placid Oil Co.'s Moody 1, c se se 9-17-18, 100 bbls.

Placid Oil Co.'s Lewis 1, c nw nw 10-17-18, abnd 7150 ft.

Union County: Nick Springs—Grimes Brothers' Rowland 1, sw ne 6-18-14, abnd.

ARKANSAS WILDCAT START

Union County—Lion Oil Refining Co.'s LeCroy 1, c se nw 36-16-17, rig.

MISSISSIPPI COMPLETIONS

Warren County—Magnolia's Pidgeon 1, se 27-17n-4e cored 2393-2401, recovered 4 ft sand saturated heavy black oil; dst 2380-2401 showed 270 ft mud cut with oil; 1260 ft fresh water, scum of oil, ½-in choke top, ¼ bottom, no pressure. Wilcox 2376 ft, abnd 2402 ft.

MISSISSIPPI WILDCAT STARTS

Issaquena County—Cochrane's Anderson-Tulley 1, nw sw 17-17n-3e.

Lincoln County—Freeport Sulphur Co.'s Clark 1, 1480 ft e 700 ft n sw cor 15-6n-9e.

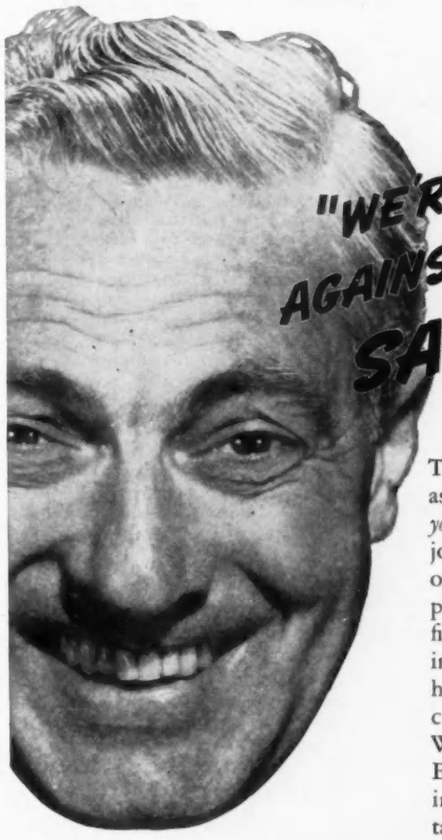
Rocky Mountain Area

Gas Production Extended In Two Areas

Two gas extensions. Stanolind crew working San Juan Basin in New Mexico. Union wildcat in Utah nears completion.

Barker Dome: Southern Union Production Co.'s Tribal 2, SW NE 21-32n-14w, extended Barker Dome, New Mexico, half mile, 10.0 gas from Dakota sand at 2499 ft.

West Kevin: Flowing 7.6 gas from 2165 ft, while drilling deeper 2253 ft, Big West Oil Co.'s Vial 2, C SW SW 31-35n-4w, extends West Kevin gas



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field half mile southeast, Toole County, Montana.

Vernal Wildcat: Union Oil Co.'s Government 1, C NE SE 21-4s-20e, nearing objective, drilling below 1950 ft. Wildcat located 12 miles west of old, abandoned Ashley Creek gas field, Uintah County, Utah.

MONTANA FIELD COMPLETIONS

Glacier County: Cut Bank—Santa Rita Oil & Gas Co.'s Miller 2, cnw se 29-33n-5w, cable, swabbing 335 bbls, lower Cut Bank 2875-2917 ft, td 2918 ft.

Toole County: Kevin-Sunburst—E. A. McDougall's Eagle Creek 1, ne se 24-32n-3e, cable, abnd 2250 ft, 1800 ft water in hole.

California

Colusa County Wildcat Resumes Search for Gas

Resume drilling on Colusa County test; San Mateo County wildcat play launched; Ventura County test fails to flow.

Colusa County: Pacific National Petroleum Corp.'s Sites 1, 19-17-4, bottomed at 1408 ft, is preparing to resume operations. Gas sand originally cored 1358 ft and entered water sand 1390 ft which is common to area. Operator will carry deeper and then run full string of pipe and shoot any indicated gas zones.

San Mateo County: Superior Oil Co. has taken a block of 3700 acres centering around 13-7-5 and has started core hole in 24-7-5 and staked location for second core hole in same section.

Ventura County: Richfield's Ojai 44, bottomed at 8755 ft has been plugged to 5608 ft and 81 ft perfs at 5411 ft. Swabbing recovered foamy water with slight odor of oil, showing no kick or gas.

CALIFORNIA COMPLETIONS

Kern County: Belridge—Belridge Oil Co.'s No. 47-27, 1735 ft n 706 w se cor 27-27-20, flow 1068 bbls 30-gr, 96/64-in bean 150/950 lbs, open hole 8505-8575 ft, td 9637, pd 8575 ft.

Kern County: South Belridge—General's Belridge 8A, 233 ft s, 252 e nw cor 3-29-21, pump 73 bbls 14.2-gr, perf 468-814, 836-900 ft, td 913 ft.

Kern County: Buena Vista Hills—Standard's No. 97-35B, 2433 ft n, 2451 w se cor 35-31-23, pump 115 bbls 29-gr, 254 ft perf 3249 ft, td 3250 ft.

Kern County: Mount Poso Area—Alpha Oil Co.'s Elliott 1A, 1520 ft s, 2380 e nw cor 1-27-28, abnd 800 ft in granite.

Tulare County: Tulare Area—Richfield's N. Tulare Comm. 1-1, 330 ft n, 330 w se cor 33-19-24, abnd 5356 ft in slate topped at 5347 ft.

CALIFORNIA WILDCAT STARTS

Kern County—Reserve Oil & Gas Co.'s Tejon 33-5, 33-11-19, lcn, Grapevine-Wheeler Ridge area.

Kern County—Texas Co.'s Pioneer Unit Plan 2, 33-11-23, Grading roads, Southeast Midway area.

San Bernardion County—Union's Newman Bros. 1, 2-3-8, lcn, Carbon Canyon Chino area.

Michigan

Oil Showing at Record Depth in Headquarters Field

Sun Oil Co. logged 1600 ft of oil in hole at 4957-4975 ft in State A2, N½ NW SW 33-21n-3w, Roscommon County, establishing new horizon for Headquarters field. If commercial it will establish depth record for oil production in Michigan. Show is in Upper Monroe. Hole was carried to 4985 ft, showed water and was plugged back to 4970 ft to test. It is on west flank of Headquarters field having missed Traverse at 3400-ft level.

Riverside: With the field discovery cutting from 15 to 20 percent water with an average of 197 barrels of oil, another blow loomed for the Riverside district, Missaukee County, with Pure Oil Co.'s Willett 1, N½ NW SW 14-21n-7w, diagonal southwest offset, falling off 26 ft on the Monroe structure. It was shut down for orders at 3978 ft.

Reed City: Largely defined in area to cover approximately eight sections, possible new development on the north and south ends of this field is indicated by new wells. McClanahan Oil Co.'s Mann 1, S½ NW NW 19-18n-10w, farthest northwest well, showed oil in Monroe lime and will be acidized.

MICHIGAN COMPLETIONS

Arenac County: Wildcat—Basin & Rayburn's Switzer 1, s½ se se 8-19n-4e, Dundee 2770 ft, abnd 2860 ft.

Clare County: Headquarters—American Drilling Co.'s State W-1, n½ nw se 4-20n-3w, flow 135 bbls 1st hr, Traverse 3339 ft.

Isabella County: Vernon—Mich. Devonian Pet. Corp.'s Horan 1, nw ne 2-15n-4w, stray sand, 1,050,000 gas, 1303 ft.

Lake County: Sauble—Gordon Oil Co.'s Brazers 1, ne se se 8-19n-14w, Monroe 2880 ft, abnd 2960 ft.

Montcalm County: Winfield—Taggart Bros. Co.'s Jack 19, c w½ 6-12n-9w, 2,000,000 gas, Stray sand 1190 ft.

Osceola County: Reed City—C. L. Maguire,

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Inc.'s Johnson 1, n½ sw se 5-17n-10w, 100 bbls 12 hrs, Monroe lime 3590 ft.

Pure's Ohman 1, n½ sw ne 5-17n-10w, 1100 bbls, Monroe 3562 ft.

Osceola County: Evart—Taggart Bros. Co.'s Meyer 7, ne 22-18n-8w, 388,000 gas, Stray 1450 ft.

Taggart Bros. Co.'s Rueffer 11, ne 21-18n-8w, 200,000 gas, Stray 1448 ft.

Taggart Bros. Co.'s Stine 10, nw 23-18n-10w, abnd 1560 ft.

Schoolcraft County: Wildcat—P. B. Pattison's Verschre 1, nw ne ne 14-42n-16w, St. Peter sand 1020 ft, abnd 1055 ft.

Van Buren County: Mill Lake—Jetter Drilling Co.'s Barid 1, sw sw nw 14-1s-14w, abnd 1299 ft.

Van Buren County: Columbia—Globe Drilling Co.'s Lyster 1, se se se 16-1s-15w, abnd 1248 ft.

WILDCAT STARTS

Mason County—Walhalla Oil Co.'s Young 2, nw se nw 9-17n-15w, rig.

Taggart Bros. Co.'s Peterson 3, c sw 19-17n-17w, lcn.

Newaygo County—Nelson & Voorhee's Kilts 1, se se sw 10-11n-13w, rig.

Monroe County—Loonan Hines et al, Stoffle 4, 1.0 gas, 1114 ft.

Morgan County—B. J. & Clara Crowley et al, Bowman 5, 1 bbl, 425 ft.

Muskingum County—Ohio Fuel, Young 1, 1.1 gas, 4233 ft.

Perry County—Palm Oil Corp., Amerine 3, 102 bbls, 3285 ft.

Preston Oil, Holbein & Embrey 1, 21 bbls, 3337 ft.

Stark County—East Ohio, Welty 1, abnd 4787 ft.

Washington County—Chas. D. Fogle, Fee 4, 0.04 gas, 1901 ft.

OLD WELLS DRILLED DEEPER

Athens County—Anderson et al, Benson 7, 0.2 gas, 1493 ft.

PENNSYLVANIA COMPLETIONS

Armstrong County—Apollo Gas Co., Walker 1, 0.13 gas, 3408 ft.

Clarion County—Owens Illinois Glass Co., Barnhart 2, 0.03 gas, 2865 ft.

Greene County—Mfgrs. Lt. & Heat Co., Grinnage 2, 0.38 gas, 2957 ft.

Washington County—Foley & Williams, Clark 1, abnd, 2688 ft.

WEST VIRGINIA COMPLETIONS

Calhoun County—Hope Natural Gas, Knotts 8596, 0.06 gas, 1796 ft.

Clay County—Wallback Oil & Gas Co., Hanshaw 3, 5 bbls, 2146 ft.

Pitts. & W. Va. Gas Co., Elk River Coal & Land Co., 7843, abnd 2356 ft.

Jackson County—Godfrey L. Cabot, Inc., Counts 1, 0.01 gas, 5129 ft.

United Fuel Gas Co., Kootz 5074, 3.5 gas, 5185 ft.

Columbian Carbon Co., Jackson County Bank 1, 1.49 gas, 5187 ft.

Kanawha County—Columbian Carbon Co., Kersey 1, 12.0 gas, 5244 ft.

Godfrey L. Cabot, Inc., Elkland Improvement Co. 1, abnd 4813 ft.

United Carbon Co., Jones 1031, 0.44 gas, 5148 ft.

Pleasants County—Jones Farm Oil & Gas Co., Jones 1, 5 bbls, 1790 ft.

Upshur County—Hanley & Bird, Morison & Sexton, abnd 4636 ft.

OLD WELLS DRILLED DEEPER

Lincoln County—Turtle Lick Gas Co., Dodson 1, 0.44 gas, 2357 to 3549 ft.

Mud River Gas Co., Adkins 1, 0.58 gas, 2145 to 3502 ft.

Eastern States

First Commercial Oil Strike in Virginia

Commercial production has been established in southwestern Virginia at Eisel et al's Fugate 1, 3 miles south of Rose Hill, Lee County. Trenton lime was drilled to 1113 feet to show 2 feet of saturation without complete penetration of the formation. Well produced 20 barrels of 45.2-gravity oil on pump. Operators have moved rig to a new location 200 yards southeast where a second test is being started. Oil from discovery is being purchased by Stoll Oil Refining Company, Louisville, Kentucky, $3.10 per barrel being the set price.

Additional shows have been obtained in this area of Virginia, and some wells in Wise County were produced for a time. These had never been of commercial importance and have subsequently been abandoned. There are a number of minor gas wells in the area.

NEW YORK COMPLETIONS

Allegany County—Trio Oil Co., Big Four farm, Bolivar, 5 bbls, Richburg, 1370 ft.

Bradley Prod. Corp., Nobles farm, Alma, 5 bbls, Richburg, 1288 ft.

B. & B. Oil Co., Curtis farm, Bolivar, 9 bbls, Richburg, 1372 ft.

Buehring, Harris & McEnroe, Allen farm, Scio, 9 bbls, Richburg, 1145 ft.

Central Oil Co., Holtum farm, Scio, 8 bbls, Richburg, 1056 ft.

Porge Oil Co., Anderson farm, Alma, 10 bbls, Richburg, 1382 ft.

Marsh Oil Co., Fay farm, Bolivar, 10 bbls, Richburg, 1429 ft.

Quaker Oil Co., Brown farm, Alma, 7 bbls, Fords Brook, 1261 ft.

Stout & Graves et al, Roeske farm, Wellsville, 6 bbls, Fords Brook, 1391 ft.

I. & H. Oil Co., Peterson farm, Wirt, 6 bbls, Richburg, 1422 ft.

Gordon Smith Oil Co., lot 8, Genesee, 8 bbls, Richburg, 1486 ft.

INTAKE WELLS

Allegany County — Bradley Prod. Corp., Bascome farm, Alma, Richburg, 1176 ft.

Producers Oil Corp., Keller-Scott farm, Wirt, Richburg, 1078 ft.

Star Oil Co., Neff farm, Wirt, Richburg, 1336 ft.

Pat Oil Co., Shaughnessy farm, Alma, Richburg, 1314 ft.

McDougall Oil Co., Fee farm, Clarksville, Richburg, 1372 ft.

Otto Oil Co., Bartlett farm, Bolivar, Richburg, 1160 ft.

Whiteman & Conkling, Wetherby farm, Clarksville, Richburg, 1423 ft.

OHIO COMPLETIONS

Athens County—Ohio Fuel, Dille 1, 0.67 gas, 808 ft.

Fairfield County—City Nat. Gas., Harris 1, 0.12 gas, 2484 ft.

Knox County—Upham Gas Co., Doup 1, abnd 2753 ft.

Medina County—Ohio Fuel, Smith 3, 1.5 gas, 3501 ft.

Meigs County—Ohio Fuel, Stevens 1, 0.35 gas, 783 ft.

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Here, the discriminating traveller enjoys an atmosphere of refinement, courtesy, graciousness.

Here, beautiful appointments, quiet luxury, perfect service, excellent cuisine, and sparkling entertainment in the brilliant Mayfair Room—all combine to satisfy a notable and discriminating clientele.

A. S. KIRKEBY,
Managing Director

The Blackstone
South Michigan Ave.
CHICAGO

Men in the Industry's News

TEMPLE W. TUTWEILER, chief engineer of Cities Service Company, received an honorary degree of Doctor of Laws from the University of Alabama last week. Tutweiler, a graduate of the university, is a director in Cities Service Company and is in charge of its oil and natural gas operations. He is active in planning and new construction of facilities for manufacture of aviation gasoline, synthetic rubber, toluol and other war materials.

J. C. POLLARD has resigned as assistant director of geophysics of Magnolia Petroleum Company, effective May 25. He will hereafter be associated with Robert H. Ray, Inc., and Rogers-Ray, Inc., in geophysical contracting and consulting work with headquarters at Houston. Paul E. Nash, who has been with the geological and geophysical department of Vacuum and Magnolia since 1926, became assistant director of geophysics of Magnolia Petroleum Company, effective May 25.

CHARLES S. SMITH, general sales manager of White Star-Ohio division of Socony-Vacuum Oil Company, died last week in Detroit. He had been general sales manager of the division since 1940 and had been in the oil industry for about 40 years.

C. B. JOHNSON, JR., and P. J. Moore, Seismograph Service Corporation, are en route to Venezuela to assist in analysis of drilling wells. Johnson is on leave from Barnsdall Research Corporation.

J. R. BURKE, land department, The Atlantic Refining Company, is retiring from active service after 24 years with the company.

R. C. KERR, California Company geologist, addressed a joint meeting of the Michigan API Chapter, the Michigan Geological Association and the Michigan Oil Scouts Association at Mt. Pleasant recently on aspects of oil development in the Near East, particularly in Arabia. Kerr spent several years in foreign service. He will spend considerable time in the Southwest with Army officials as a technical consultant in the adaptation of large diameter and low-pressure tires for use on mobile war equipment in desert country. Before leaving Arabia, Kerr observed first hand the bombings by Italians of the California camp at Dhahran.

SURCE J. TAYLOR, assistant district geologist for Seaboard Oil Company in West Texas, has been transferred from Midland to Corpus Christi, where he will hold the same position in the Southwest Texas district.

ROBERT W. HARRISON, petroleum engineer with Foran, Boatright & Dixon, Houston, has taken up duties with the Army Engineers as first lieutenant. His new address is 3615 Meade Street, Denver, Colorado.

FRANK G. EVANS, research geologist of Shell Oil Company, Houston, will give an illustrated talk on "The Interpretation of Aerial Photographs" before the Gulf Coast Section of the A.I.M.E. June 2 at River Oaks Country Club.

EDWARD LIPSON of Lipson Engineering Company, Houston, has been commissioned a major in the Signal Corps and ordered to report in Washington June 1 for duty.

New officers of the Engineers Club of Tulsa, pictured left to right, include, seated: C. H. Bloom, director; C. V. Millikan, Amerada Petroleum Corporation, executive vice president; Frank B. Taylor, *The Oil Weekly*, president; H. R. Auerswald, Gulf Oil Corporation, director and immediate past president; standing, Ray E. Carter, Unit Rig & Equipment Company, vice president; Warner Lewis, Warner Lewis Company, director; Fred M. Carrol, Shell Oil Company, vice president; J. Scott Thompson, W. C. Norris Manufacturer, president of Junior Group; P. P. Manion, Stanolind Oil & Gas Company, vice president; William Overton, reelected secretary, and Charles S. Larkey, Sinclair Prairie Oil Company, treasurer.

CORE DRILLING . . .
SHOT HOLE DRILLING
DEPTHS TO 3000 FEET . . . .
ALSO ELECTRIC LOGGING AND WIRE LINE CORING SERVICE
ROUSE EXPLORATION DRILLING COMPANY
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ELBOW ROOM FOR STEAM LINES

UNIBOLT "Flexi-Ball" Joints permit high-temperature lines to expand and contract without placing strain on connections.

●

THORNHILL-CRAVER COMPANY
HOUSTON

SAND-BANUM

Removes and prevents scale and corrosion without priming or foaming, or need of water analysis.

"The Entirely Different Boiler and Engine Treatment"

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WESTERN SAND-BANUM COMPANY
Houston, Texas Fresno, California
and at other convenient points including leading supply houses

Export Representatives
PETROLEUM MACHINERY CORP.
30 Rockefeller Plaza New York City

R. A. FEEMSTER has been appointed Division Sales Manager for Kobe, Incorporated. He will be in charge of field and sales operating activities for the Mid-Continent Division, and will continue his headquarters in the company's division offices at Oklahoma City. Prior to joining Kobe, Incorporated in 1941 as district representative, he was associated with development work in oil field equipment involving subsurface, drilling and completion problems. Before that—and after graduating from the Oklahoma University's School of Petroleum Engineering—he was with the engineering and production department of Phillips Petroleum Company.

PROFESSOR JOSEPH H. POUND, head of the mechanical engineering department of Rice Institute, Houston, died May 23. He came to Rice in 1914. He was a lieutenant in the first World War with the Engineering Corps and served two years overseas.

JESSE G. KLINE, assistant controller and chief cost accountant of The Atlantic Refining Company, was elected president of the Philadelphia Chapter of the National Association of Cost Accountants, at the annual meeting recently.

CAPTAIN MICHEL T. HALBOUTY, Houston, has been assigned to the Army Air Corps, Wichita, Kansas. He recently graduated from the Fort Benning, Georgia, tactical school.

A. E. CROCKETT, 69, special sales representative for Jones & Laughlin Steel Corporation, died May 20 after a short illness. Crockett had been associated with Jones & Laughlin since May, 1915.

M. A. ROSE, geologist with the ground water division of the U.S.G.S., presented a paper on "The Ground Water Resources of the Houston District" before the Houston Geological Society May 28.

CLAIR C. SIMMONS has been placed in charge of the Fort Worth branch office of Franks Manufacturing Corporation to succeed R. N. White who has been called to Washington temporarily. Simmons went to work for the company in January, 1934, doing shop work and operating a drill press. In a short time, he had operated every machine in the shop. In 1936, he began two years as a service man, and in 1938 he began his experience as a roughenck, working for Shell Oil Company at Big Spring, Texas. On January 1, 1940, he was transferred to Odessa, Texas, where he opened and operated the company's first branch parts warehouse and service department.

WILLIAM A. ROEVER, sales engineer since 1937 for Clark Bros., first at the Dallas and later at the Houston branch

FITLER
TRADE MARK
"PHILADELPHIA"
OILFIELD CORDAGE

FITLER "DEFENSE" BRAND SPINNING LINES

As it is everyone's duty to conserve manila fibre, we feel that it is Fitler's duty to its many faithful customers to produce a substitute when priorities prohibit its usage.

Such a rope is the new Defense Brand Oiled Sisal — thoroughly lubricated and treated to resist water absorption. It will stand internal friction and abrasive wear.

3-strand Right Hand Lay

4-strand Right Hand Lay
(Left Hand Lay on special orders only)

Cable Laid (Drilling Construction)

If your Dealer cannot supply you — write direct for information.

THE EDWIN H. FITLER CO.
PHILADELPHIA, PA.
Established 1804

Why THE INDUSTRY'S LEADING CENTRIFUGE?

BECAUSE:

Heavy duty, ruggedly constructed and extremely simple in design . . . Gets quick, accurate results . . . produces required speed with less effort . . . Cranks and heads of 100 CC and 15 CC size machines interchangeable . . . Meets *A.S.T.M. Standard Method D-96* and *A.P.I. Code No. 25* requirements.

W·H·CURTIN & CO.
Inc.
HOUSTON U·S·A TEXAS

office, has recently been called to military service at Camp Wallace, Texas. Entering service as a member of A Battery, 31st Artillery Training Battalion, since April 15 he has held the rank of adjutant on the battalion staff.

Roever is a graduate of Washington University, St. Louis, mechanical engineering, 1930. While at the university he took 4 years fo R.O.T.C. and in 1929, before graduation he was commissioned a second lieutenant in the Coast Artillery Corps, anti-aircraft. In addition to his 4 years of R.O.T.C., he has served in Coast Artillery at Fort Knox, Louisville, Kentucky, and at Fort McClean, Anniston, Alabama, attaining rank of first lieutenant. Later still he saw artillery service with the Texas National Guard.

LIEUT. W. A. ROEVER

Squeaks from the Bull Wheel

Right Bait

A clergyman, accompanied by two charming girls, stood admiring the beauties of a little stream. An angler passing by said, "Any sport?"

"Sir? I'm a fisher of men," replied the parson with dignity.

"Well," retorted the fisherman, glancing admiringly at the girls, "you have the right bait."

Steady Employment

"Does your man work, Mrs. Wiggs?"

"Oh, yes; he peddles balloons whenever there's a parade in town. What does your husband do?"

"He sells smoked glasses during eclipses of the sun."

She Hints He Leave

"My dad takes things apart to see why they don't go."

"Well?"

"You'd better go."

Watchful Waiting

Mother—I'm so glad, twins, you're sitting quietly and not disturbing daddy while he has his nap.

Twins—Yes, mummy, we're watching his cigarette burn down to his fingers.

Protected!

The occasion was a breach of promise suit. The plaintiff's lawyer was endeavoring to read into the court records a telegram containing the marriage proposal. The defense interrupted to point out that, under court rules, his adversary would have to read, not only the message itself, but all the printed matter on the blank as well. The plaintiff's attorney accommodated him by reading:

"There shall be no liability on account of this message unless the same shall be repeated, and then only on condition that the claim be made within 30 days in writing."

Quick Tests

The latest Washington story is that they have a very simple and rapid test for stenographers. The candidate for a job is ushered into a room which has in it a washing machine, a typewriter, and a machine gun. If the girl recognizes which is the typewriter, she's hired.—*American Exporter.*

From the Sales Manual

"You took that little blonde from the notions department home last night, didn't you?"

"I'll say I did, and kissed her goodnight, too."

"What did she say?"

"Oh, she just said, 'Will that be all?'"

Expert

"Are you an expert accountant?"

"Yes, sir."

"Your written references seem all right, but tell me more about yourself."

"Well, my wife kept a household account for 30 days. One night after dinner I sat down and in less than an hour found out how much we owed our grocer."

"Hang up your hat and coat. The job's yours."

Accommodations

Two Nazi officials commanded a Czechoslovak innkeeper to show them a room.

Obediently he escorted them to his best suite.

"And how much do we have to pay for this pigsty?"

"For one pig, two marks; for two pigs, four."

Gotkool
WATER CANS
& COOLERS
GOTT Water Cans are the practical way to keep drinking water cool for long periods, protected from impurities and always handy to the job. Snug fitting large removable top, strongly built to withstand rough usage. GOTT Water Coolers have extra large covers and a handy non-leaking push button faucet. Your Supply Store has them, get one today! . . . . . .
Gott
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
GOTKOOL WATER COOLER
Made in 2, 3, 5, 8, 10, 15 and 20 gallon sizes.
KEEP PURE DRINKING WATER ALWAYS HANDY

See the new feature . . . .

TRADING POST SECTION

one page 62 of this issue

Because of the scarcity of certain types of new equipment and the fact that some concerns may have a surplus of certain items and a serious shortage of others, this **"Used Equipment Forum"** has been inaugurated as a service and aid to operators in locating needed used equipment or in disposing of surpluses that may be needed by others.

Notes for the Equipment Buyer and User

Drill String Safeguard

BAASH-ROSS TOOL COMPANY

Baash-Ross Tool Company has announced two new developments to safeguard against drill-pipe loss and minimize fishing operations when drilling in troublesome formations.

Drilling Type Bumper Sub

Type E Safety Joint

The Baash-Ross drilling type bumper sub enables the operator to jar his way out of trouble and is particularly recommended for use in sticky formations, key seats, etc. The Baash-Ross type "E" autolock safety joint is particularly recommended where formations are apt to cave, making jarring operations of no value. With this joint the operator can unscrew the string above the stuck portion, thus insuring recovery of at least a major portion of the pipe.

The bumper sub is run as a part of the drill string, directly above whatever point is apt to stick—the bit, reamer, collar, etc. With it the operator can strike either a downward or upward blow to free the string. Operation is simple and the blow is under positive control of the operator at all times.

The tool has been particularly designed to meet the requirements of modern drilling operations. It is made of carefully selected steels, heat-treated to produce maximum physical properties, and will stand any force—in either direction—that the drill string is capable of delivering. The splined area through which the torque load is transmitted is rugged and oversize to give ample strength for the most severe operations. In addition, the tool has removable splined inserts that may be quickly replaced when worn, thus insuring long life and low maintenance.

The bumper sub is sealed against leakage by a packing arrangement that is especially designed to hold even high circulating pressure without leakage.

The bumper sub is available in both right and left-hand types in all popular drill-pipe sizes, including both regular and full hole.

The Baash-Ross drilling type safety joint can be used at any point in the drill string, is made to rotate in an unscrewing direction without danger of accidental release—yet it unscrews quickly and easily at the will of the operator.

The joint has a series of driving shoulders around the full circumference of the tool to provide ample driving area for heavy torque loads. In addition, the locking shoulders are so designed that when the joint is made up, they will mate in only the correct position. This eliminates the possibility of overtightening or "freezing" the joint and insures quick, positive release whenever desired. Packers prevent fluid leakage while drilling and are so designed that six unscrewing turns can be effected without losing the fluid seal.

The type "E" permits reverse rotation, when necessary, under normal conditions, as the reverse torque is transmitted through the heavy, spring-loaded collar and tapered shoulders. Yet, when release is desired, it requires not more than half the torque needed to break a normally made-up tool joint of the same size.

The Baash-Ross type "E" safety joint is stronger than the drill pipe in which it is run and will safely transmit all driving torques. It is available in all popular sizes of pipe including both regular and full hole.

Non-Skid Clamp

PATTERSON-BALLAGH CORPORATION

Patterson-Ballagh Corporation, 1900 East 65th Street, Los Angeles, has announced a different type of C clamp with non-skid features. The clamp tip is equipped with a bronze bushing in which the end of the screw rotates. The screw is made of heat-treated steel.

Non-Skid Clamp

This bushing prevents galling and provides a free movement so that slippage on the work is prevented. The frame is made of cast steel, also made with terminal lug for use on grounding cable during arc welding. A welded T-shaped wrench handle allows a firm grip.

Chain

CHAIN BELT COMPANY

Chain Belt Company, 1600 West Bruce Street, Milwaukee, Wisconsin, announced something new in its line of oil-field chain belts. It is a new riveted type chain belt which because of its unique design offers a maximum in service, economy and long life. It has all of the features which have been previously found in cottered Rex oil-field chain belt but does away with one of the major objections to the cottered type. That is occasionally the cotters work loose and obstructions to the motion of the drive will sometimes shear them off.

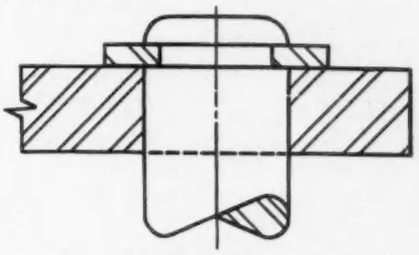

Figure A

Figure A shows a cross section of the new riveted head in the sidebar. The pin is riveted over a medium-hard washer which can be sheared by sledging in much the same manner as cotters. The washer is sledged through; the pin, which incorporates the principles of the Rex three-diameter pin, is loosened by driving it the depth of a single sidebar; and the chain is easily taken apart. Because of this construction, the rivet head can be made small enough so that when driven out through the washer, it cannot score the sidebar hole or the inner surface of the bushing.

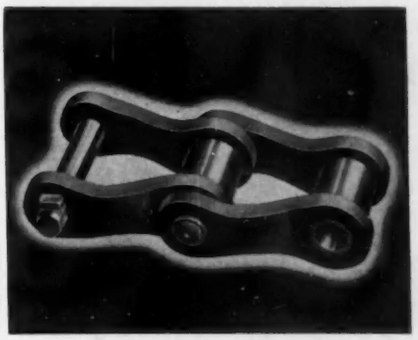

Figure B

Figure B is a two-link sample of Rex Deepwell API 4, showing the new riveted design. This new riveted chain belt is also made in the other Deepwell size—API 3—and in Champion API 3 and 4.

Los Angeles Nomads Given "Distinguished Service" Awards

Holding its regular monthly meeting May 20 during National Foreign Trade Week, the Los Angeles Chapter of Nomads heard as the main speaker,

BOWEN SOLID LINE WIPER
SAFETY - ECONOMY - UTILITY
DEPENDABILITY
CONVENIENCE

Patented

This Line Wiper, as illustrated, is available with or without the remotely controlled Packing Nut Tightener. It is the most versatile line wiping and oil saving device of its kind.

The size with 3" bottom connection will allow tools 1¾" OD to pass through it.

Descriptive literature with complete instructions is packed with every tool.

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POWERFUL LIGHT
with Safety

JUSTRITE
Twin-Bulb
ELECTRIC
LANTERN

Powerful forward beam plus light to sides. Twin-bulbs reduce danger of lamp failure — flip the switch and second bulb lights instantly. "Throw-out" type bulb sockets.

Approved by Underwriters' Labs., Inc. for Class 1, Group D locations — by U. S. Bureau of Mines for safety in Methane gas and air mixtures—by Bureau of Marine Inspection and Navigation for use in pump rooms of tank vessels.

At all Supply Stores

JUSTRITE MANUFACTURING CO.
2061 N. SOUTHPORT AVE., CHICAGO, ILL.

Oil City's Good Castings are enlisted in the Battle of Production.

OIL CITY BRASS WORKS
FOUNDERS MANUFACTURERS MACHINISTS
Beaumont, Texas, U. S. A.

W. S. Rosecrans, president of W. S. Rosecrans, Inc. Rosecrans discussed the necessity of international trade after the war.

Awards of distinguished service were presented to the regular Nomad members by Emerson Spear in behalf of the Los Angeles Chamber of Commerce which, during Foreign Trade Week, so honored men who had traveled abroad in the interest of foreign trade. These awards were parchment diplomas suitable for framing.

Several members of the consular service from a number of foreign countries were introduced by Bart Gillespie.

The meeting closed with moving pictures in colors shown by George Sutherlen who took them in Tibet, Nepal and India during a vacation taken when he was with the California Arabian Standard Oil Company in Saudi Arabia.

Foreign oil men present included M. H. Bush of California Arabian Standard Oil Company from Saudi Arabia; W. C. Field who was with the N. P. P. M. in Sumatra; Dirk Kwakernaat of the Caribbean Petroleum Company, Venezuela; H. J. Buddenhagen of Shell interests, Maracaibo, Venezuela; Affonso Cesario Alvim, Luiz Meira de V. Chaves and Geonisio Carvalho Barroso of the Conselho do Petroleo, Brazil.

Westinghouse Elects Four New Vice Presidents

Election of four Westinghouse executives to the rank of vice president is announced by G. H. Bucher, president of the Westinghouse Electric and Manufacturing Company following action by the board of directors.

They are Andrew H. Phelps of Pittsburgh, Pennsylvania, manager of purchases and traffic; L. E. Osborne of Philadelphia, Pennsylvania, manager of the steam division; Frank C. Reed, of Jersey City, New Jersey, president of the Westinghouse Electric Elevator Company, a subsidiary; and Walter C. Evans of Baltimore, Maryland, general manager of radio, x-ray and broadcasting divisions. All the new vice presidents will continue in their present executive posts.

Pacific Pump Works Quadruples Plant Facilities

Quadrupling of plant facilities for the manufacture of aircraft hydraulic actuating assemblies and accessories is under way at Pacific Pump Works, Huntington Park, California.

Pacific Pump has had long experience in the manufacture of precision parts of the same kind that are used in making hydraulic actuating assemblies. The component parts of these units are similar to those used in reciprocating oil well plunger pumps, which constitute a large proportion of Pacific Pump Works' normal production, and require the same high precision of design and manufacture.

Industrial Offices

Johns-Manville, 22 East 40th Street, New York, has issued a folder illustrating the speedy erection of offices in industrial plants. Directed to plant operators faced with the problem of providing additional offices quickly, the folder points out the versatility of Transite movable asbestos walls, which, it states, can make possible, in many cases, complete construction of offices overnight.

Advertisers' Index

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You may have surplus used equipment that is urgently needed by some other operator.

TRADING POST SECTION

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NORDSTROM MERCHROME-COATED MUD LINE VALVES

—THE MOST ABRASIVE-RESISTANT VALVES EVER DESIGNED!

OUT-WEAR

Give extra service far beyond the life of ordinary valves.

Sizes: 2″, 3″, 4″.

OUT-PERFORM

Actual service records prove their amazing economy.

Pressures: 1500 to 3000 lbs.

MERCO NORDSTROM VALVE CO., *A Subsidiary of Pittsburgh Equitable Meter Co.*

MAIN OFFICE: Pittsburgh, Pennsylvania · BRANCHES: Boston, Buffalo, Brooklyn, Chicago, Columbia, S. C.; Des Moines, Houston, Kansas City, Los Angeles, Memphis, New York City, Philadelphia, San Francisco, Seattle, Tulsa

—Photo by Meisel

An 11 x 11 Brown Duotone Print of the Bull Wheel, suitable for framing, will be sent on request.

30th ANNIVERSARY
1942
CONTINENTAL SUPPLY CO.

Characteristic of the Industry

The ***Continental Green Triangle***, like the old Bull Wheel, is a true symbol of achievement and service to the Oil and Gas Industries.

1942 marks Continental's Thirtieth Anniversary.

In the face of trying conditions, Continental and its associated manufacturers are continuing their developments, determined that in product and service alike, there can be but *one . . . the best.*

THE CONTINENTAL SUPPLY CO. • DALLAS, TEXAS

CONTINENTAL

SERVING THE OIL AND GAS INDUSTRIES

For better and longer service be sure it's J&L Permaset PRE-FORMED WIRE ROPE

JONES & LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

GILMORE WIRE ROPE DIVISION, PITTSBURGH & MUNCY, PENNSYLVANIA

J&L OIL COUNTRY PRODUCTS

SEAMLESS TUBING • CASING • J&L INTEGRAL-JOINT DRILL PIPE
LINE PIPE • WIRE ROPE

J&L PARTNER IN PRODUCTION TO INDUSTRY AND DEFENSE

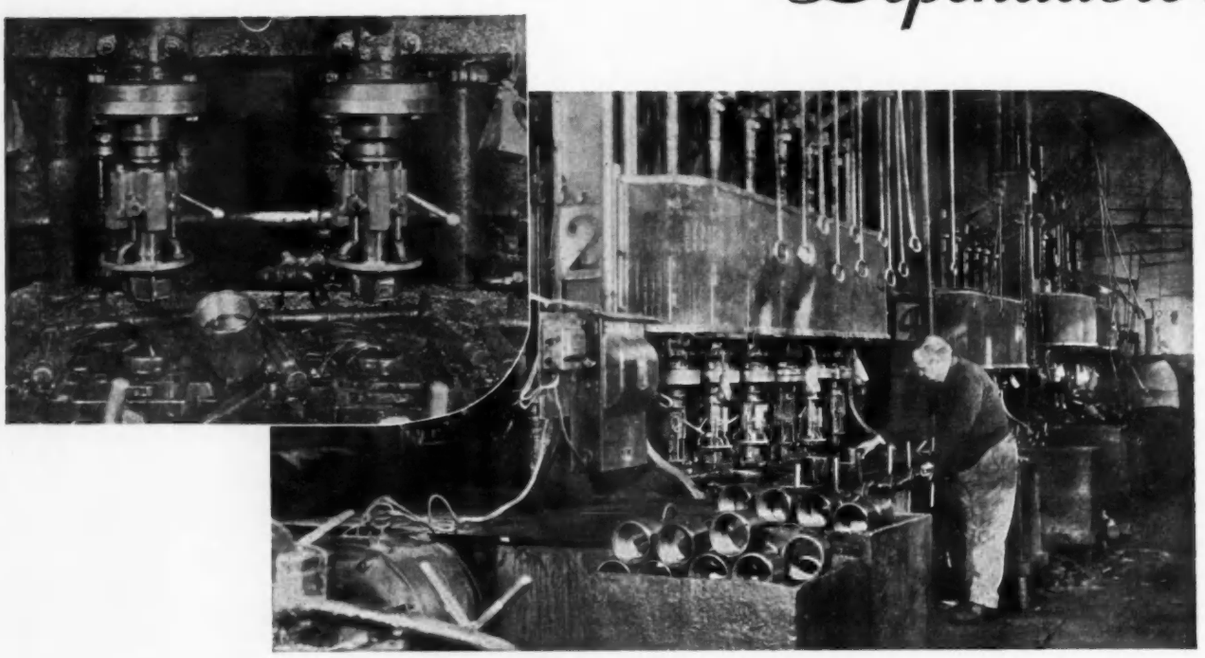
J&L STEEL

Casing, Tubing, and Drill Pipe (API) Threads Must be Accurate

LANDIS Receding Chaser COLLAPSIBLE TAPS

maintain high standards of Accuracy, and are

Dependable!



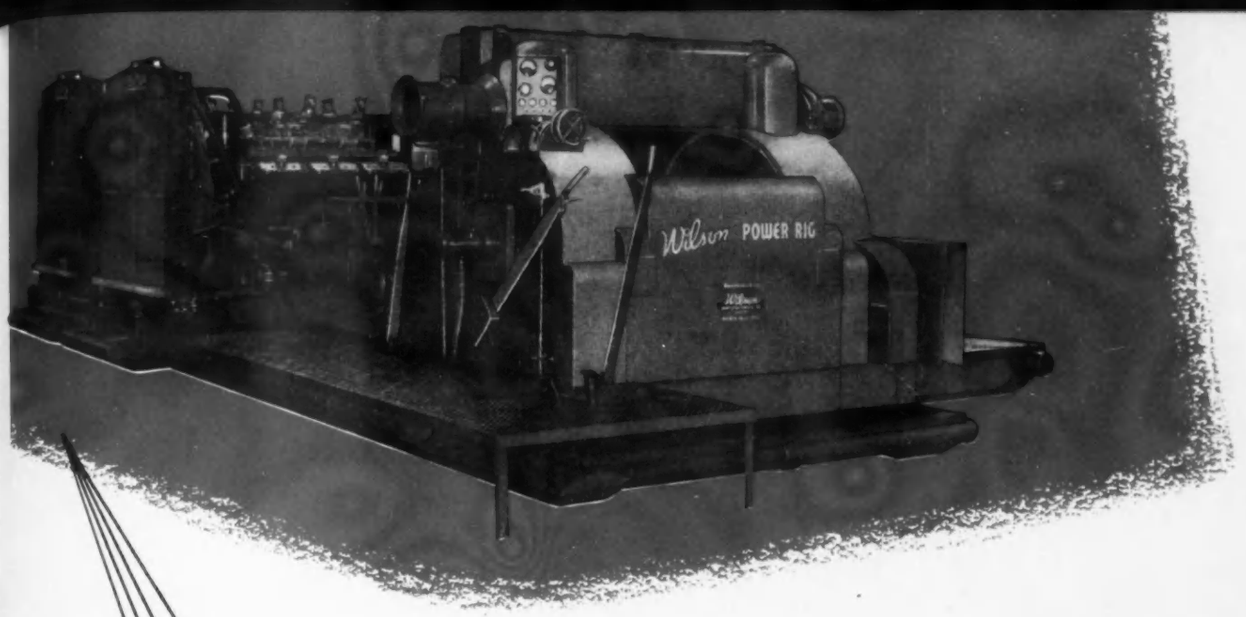
A large mid-western Steel Corp. employs LANDIS Style LM Receding Chaser Collapsible Taps for threading line pipe, casing, tubing and drill pipe couplings.

The unusually sturdy construction of this tap insures threads of the finest quality. The simple manner in which size adjustments are made assures *positive* and *accurate* size control at all times.

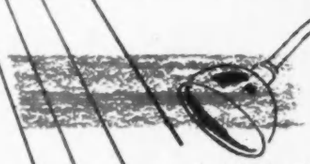
In the photographs above LANDIS Style LM Receding Chaser Taps are shown threading 4" diameter line pipe couplings. The exacting API specifications for these threads are easily maintained and the taps average 12 complete couplings per hour.

Investigate the many outstanding advantages of LANDIS Receding Chaser Collapsible Taps. Write us today for information.

LANDIS MACHINE COMPANY, Waynesboro, Penna., U. S. A.



HOW TO GET THE BEST SERVICE FROM YOUR . . . WILSON POWER RIG

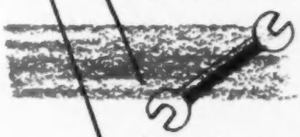


PROPER LUBRICATION

Lubrication is the life line of your rig. This life line can be long—or short—depending on how well you keep your rig lubricated. Too much lubrication is as injurious to your rig as too little. Watch this closely. Keep your rig *properly* lubricated. Make it last longer and give outstanding service at all times.

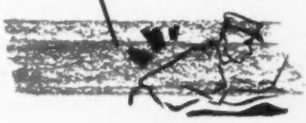
PROPER OPERATION

Careless operation means destruction to a rig. Wilson rigs are capable of drilling constantly at great speed, and they are built with unusual stamina, but common sense should govern their operation. Remember, a few hours gained in fast operation when not advisable is often lost through hours of shutdown time due to breakage caused by careless operation. Take precaution! Use discretion!



PROPER ADJUSTMENTS

It's not only patriotic but good judgment to keep your rig in proper adjustment and prevent costly repair jobs at this time. Make your rig last as long as you can. Prolong the life of all working parts by going over your rig regularly and keeping all working parts and adjustments in proper adjustment. If adjustments are necessary which you cannot handle, don't fail to let us know about it at once. Make adjustments at the time needed!



PERIODIC CHECKUP

A thorough checkup of your rig at frequent intervals may prevent many costly shutdowns. Don't forget to check the tension of all chains; look for leakage of oil around oil bath guards; and keep a close lookout for parts that are beginning to wear and for those that need repair. Thousands upon thousands of feet of hole can be drilled without any trouble at all if you will give your rig the proper kind of care. Get in touch with our service department for advice when anything goes wrong with the rig.

Wilson

MANUFACTURING COMPANY, INC. WICHITA FALLS • TEXAS

EXPORT REPRESENTATIVE • GUY E. DANIELS • 30 ROCKEFELLER PLAZA • NEW YORK CITY

PACIFIC COAST DISTRIBUTOR • H. & B. SALES CO., LTD. • LONG BEACH • CALIFORNIA

S S C specializes in the accurate revealing of geologic structure

Symmetrical synclinal fold near Hancock, Md.

Photo courtesy of United States Geological Survey

Seismograph Service Corporation

CONSULTING EXPLORATION GEOPHYSICISTS

KENNEDY BUILDING

TULSA, OKLAHOMA, U. S. A.

LIKE A *New Broom*

IN Type G-MV Compressor Units, a rush of fresh scavenging air into power cylinders, sweeps each combustion chamber completely clean of exhaust gases. Better combustion, more power, remarkable fuel economy, are direct benefits from this unique, low-pressure Streamlined Scavenging.

Low-pressure scavenging air means using less engine power to maintain it, gives more power for the real job — compressing. What's more, low pressure air does a *better* job of scavenging.

Other features of Type G-MV include compact V-angle design, Silent-Scot fuel system, oil-cooled pistons, pressure lubrication, interchangeable precision-type bearings, Meehanite Metal for all iron castings, extremely rugged construction throughout.

TYPE G-MV ANGLE COMPRESSOR

THE COOPER-BESSEMER CORPORATION
Mount Vernon, Ohio

INDUSTRY'S MOST FLEXIBLE COMPRESSOR

Convertible from gas to diesel fuel, Type G-MV is built in 400, 600, 800 and 1000-hp units, with a full range of compressor cylinder types.

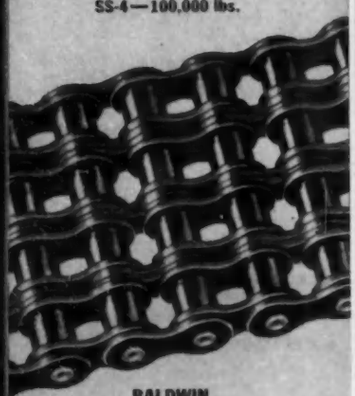
by Cooper-Bessemer

ENGINE BUILDERS SINCE 1833

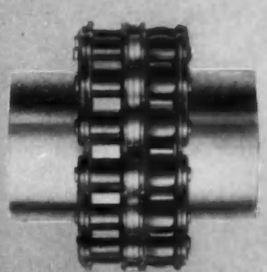
BALDWIN MASTER
1244-SS—185,000 lbs.

BALDWIN
SUPER SERVICE
1030-SS— 66,000 lbs.
1240-SS—140,000 lbs.

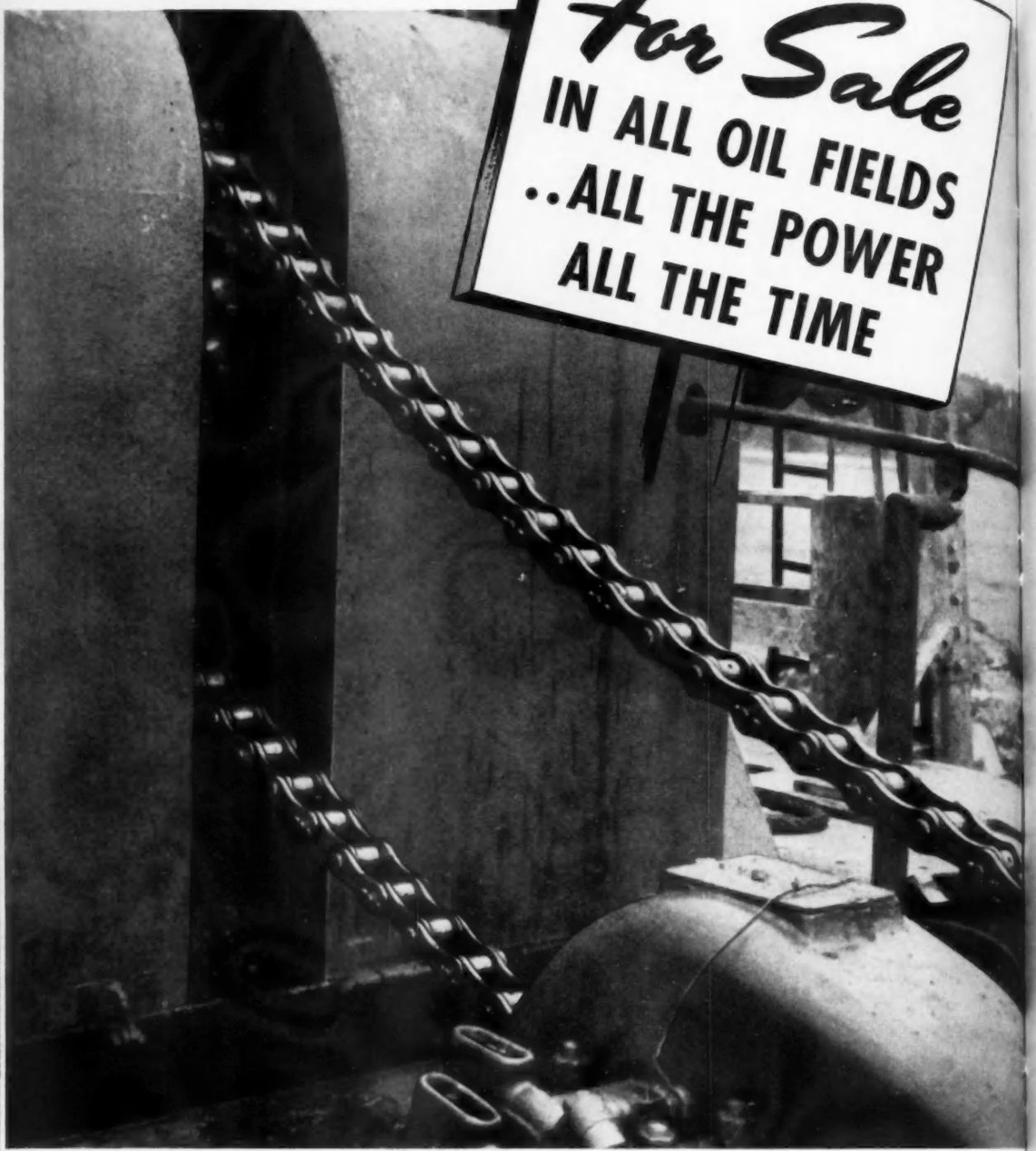
BALDWIN FULL FLEX
SS-3— 43,000 lbs.
SS-4—100,000 lbs.



BALDWIN
MULTIPLE ROLLER CHAINS
FOR DRIVES UP TO 500 H.P.



BALDWIN ROLLER CHAIN
FLEXIBLE COUPLINGS



● No guesswork about it—Baldwin oil field chains transmit *all* the power *all* the time. At cutting the cost per foot of hole, they're past masters . . . as many an experienced driller will tell you.

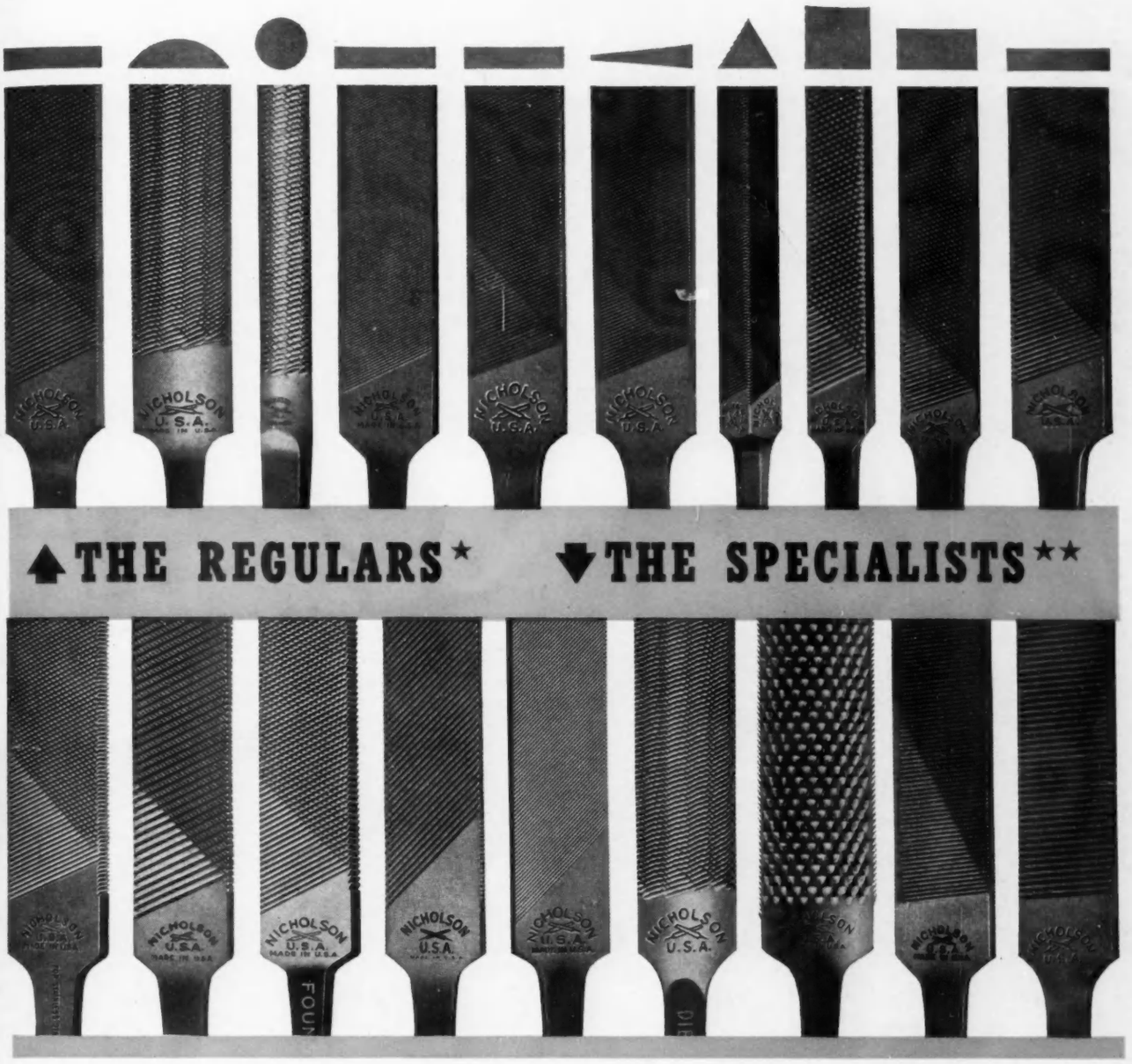
Sure, there are reasons—lots of them. Mainly, though, they do good work because *we build 'em that way!*

So if it's a better, more reliable, cost-cutting chain you're after, be sure to inspect Baldwin oil field chains at your nearest oil field supply store.

For Sale in All Oil Fields

BALDWIN-DUCKWORTH
Division of Chain Belt Company
341 Plainfield Street, Springfield, Mass.
Factories at Springfield and Worcester, Mass.

BALDWIN CHAINS TRANSMIT ALL THE POWER



LET'S GO! U.S.A. KEEP 'EM FLYING

IN THE oil as well as other industries, war requirements necessitate making old equipment last longer. This means greater responsibilities for maintenance departments—whether driller, producer, refiner or shipper. Means a greater variety of repair, parts-dressing and refitting work, too.

. . . Which, in turn, means not only more files, but a greater assortment of files in order to get the speed and efficiency of *The right file for the job.*

The above are among the more generally needed regular and special files on which Nicholson production is being concentrated; and upon which your mill-supply or equipment house can draw to meet your tool-kit and machine-shop needs.

***REGULAR PURPOSE** (*left to right*) — Flat, Half Round, Round, Mill, Warding, Knife, Three Square, Square, Pillar and Hand.

****SPECIAL PURPOSE** (*left to right*) — For Stainless Steel, Aluminum, Foundry Castings; Shear Tooth, Long Angle Lathe; for Die Castings; Aluminum Rasp; for Brass; Lead Float.

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NICHOLSON and BLACK DIAMOND Files

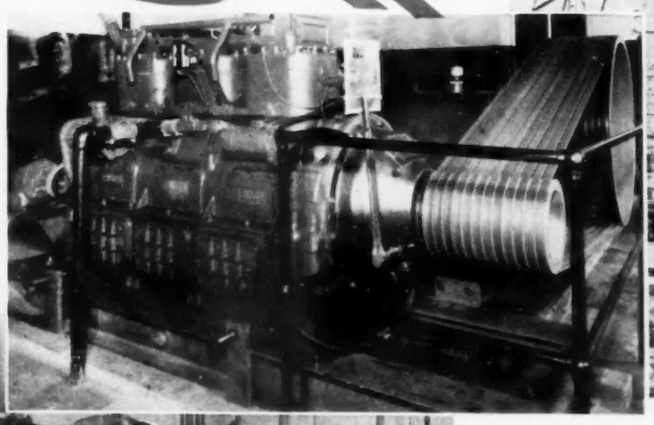
NICHOLSON U.S.A. MADE IN U.S.A.

FOR EVERY PURPOSE

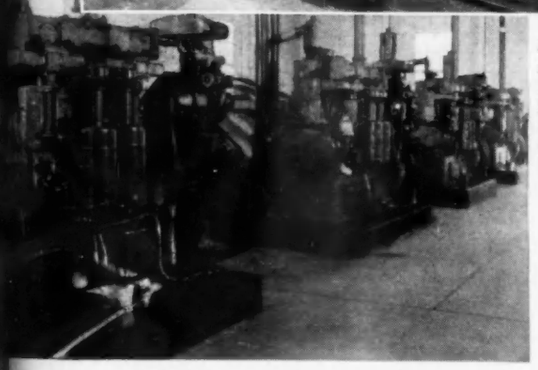
It's in the
COMPOSITE CATALOG
Yes, our complete 64-page catalog is filed in the 1942 COMPOSITE CATALOG, beginning on page 1857 . . . illustrated description of Parkersburg drilling, production and storage equipment. Should you want a reprint of our individual catalog we will gladly start one on its way to you, upon request.
COMPOSITE CATALOG of OIL FIELD and PIPE LINE EQUIPMENT 1942
PUBLISHED BY THE OIL WEEKLY
PARKERSBURG RIG AND REEL CO
THE PARKERSBURG RIG AND REEL COMPANY
PARKERSBURG, W. VA.
DALLAS
HOUSTON
TULSA
LOS ANGELES
NEW YORK

BUDA POWER

Helps to Keep "Main Line" Pipe Lines Flowing



One of Buda Natural Gas Engines installed on mainline duty at a natural gas pipe line station.



Left: Battery of Buda Model PHD-1879 Convertible Engines operating as Diesels in a Louisiana pumping station.

NOW, more than ever, the job of pumping petroleum through pipe lines is of utmost importance. The prime movers which supply power for pumping units must be:

- **ABSOLUTELY DEPENDABLE**
- **DELIVER 24-HOUR SERVICE**
- **REQUIRE ONLY ROUTINE MAINTENANCE**

Buda Oil Field Engines meet these requirements! That's why you'll find them in so many Main Line and booster stations. Available in sizes from 20 to 250 H.P., Buda Engines are built for Diesel, Gasoline, Butane or Natural Gas fuel. Get full details from your Buda distributor. Let him show you how to get *"More Horsepower Hours per Dollar with Buda Engines."*

BUDA

Oil Field Engines

THE BUDA COMPANY • HARVEY (CHICAGO SUBURB) ILLINOIS

BUDA OIL FIELD ENGINES—OIL FIELD JACKS—PARTS AND SERVICE AVAILABLE AT:

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IDWAY TOOL COMPANY
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BUDA ENGINE & EQUIPMENT CO.
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Wichita Falls, Tex.—218 Indiana Ave.
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Tinsley, Miss. . . . . Shreveport, La.
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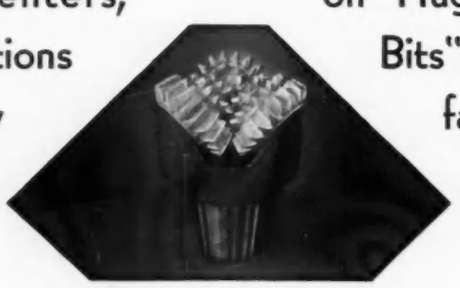
FOR "LONG-RANGE" OPERATIONS . . .

The 155-mm. gun, one of the longest-range field artillery weapons, blasts at munitions dumps, supply centers, and heavy fortifications far behind enemy lines. . . . . .

To produce the oil needed to "keep 'em rolling and firing," the drilling industry depends on Hughes Rock Bits—Bits "tailor-made" to drill faster hole with fewer round trips.



Hughes Tool Co., Houston, Texas

(Eng. Engineering)
Oil Weekly. V. 105, 1942

West Texas-New Mexico Oil and Gas F

Map Prepared by

SOUTHWEST MAPPING CO.

Fort Worth, Texas

Published as supplement to

The OIL WEEKLY

Issue of May 4, 1942

PRODUCING OIL FIELD

SCALE IN MILES

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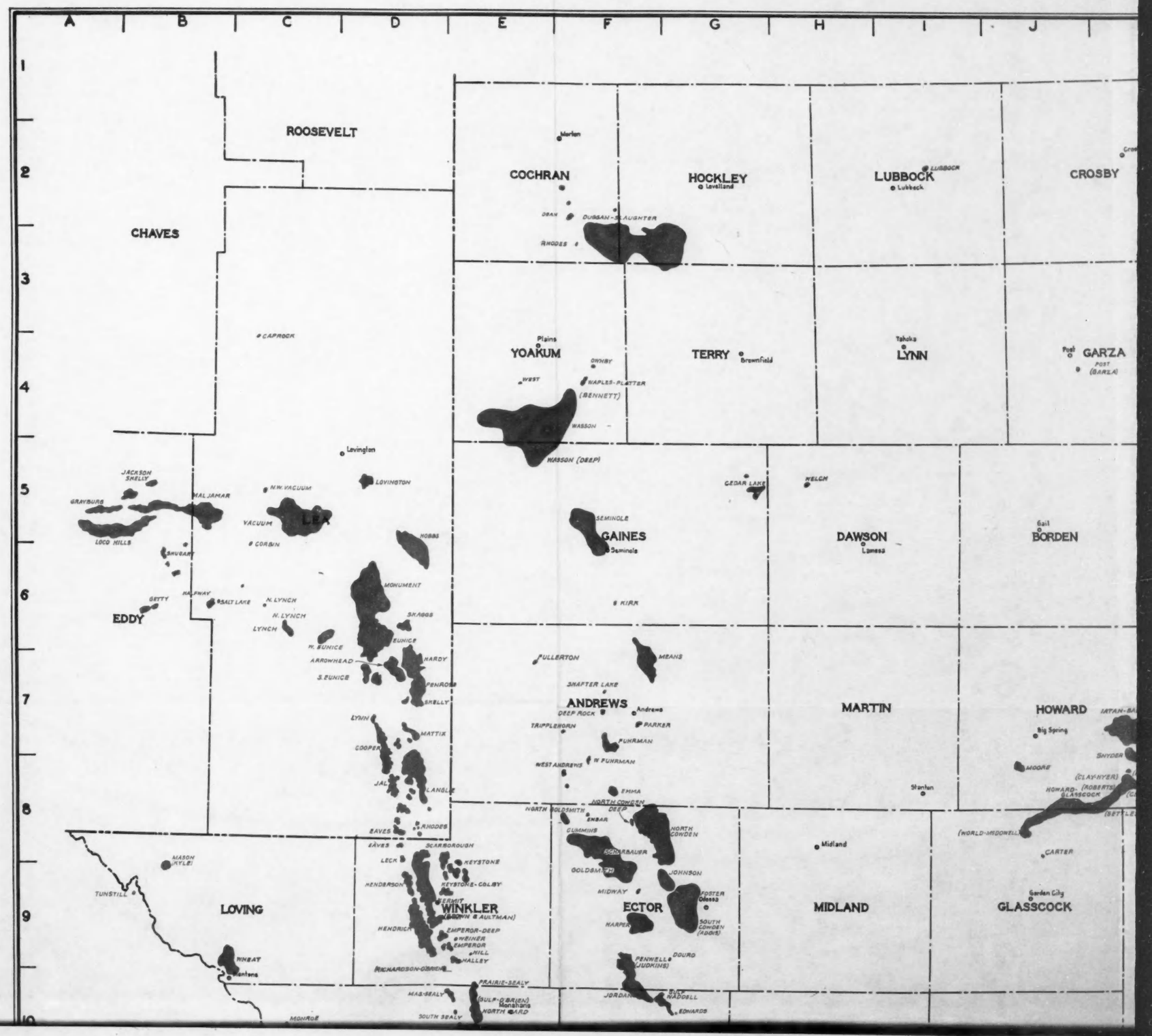

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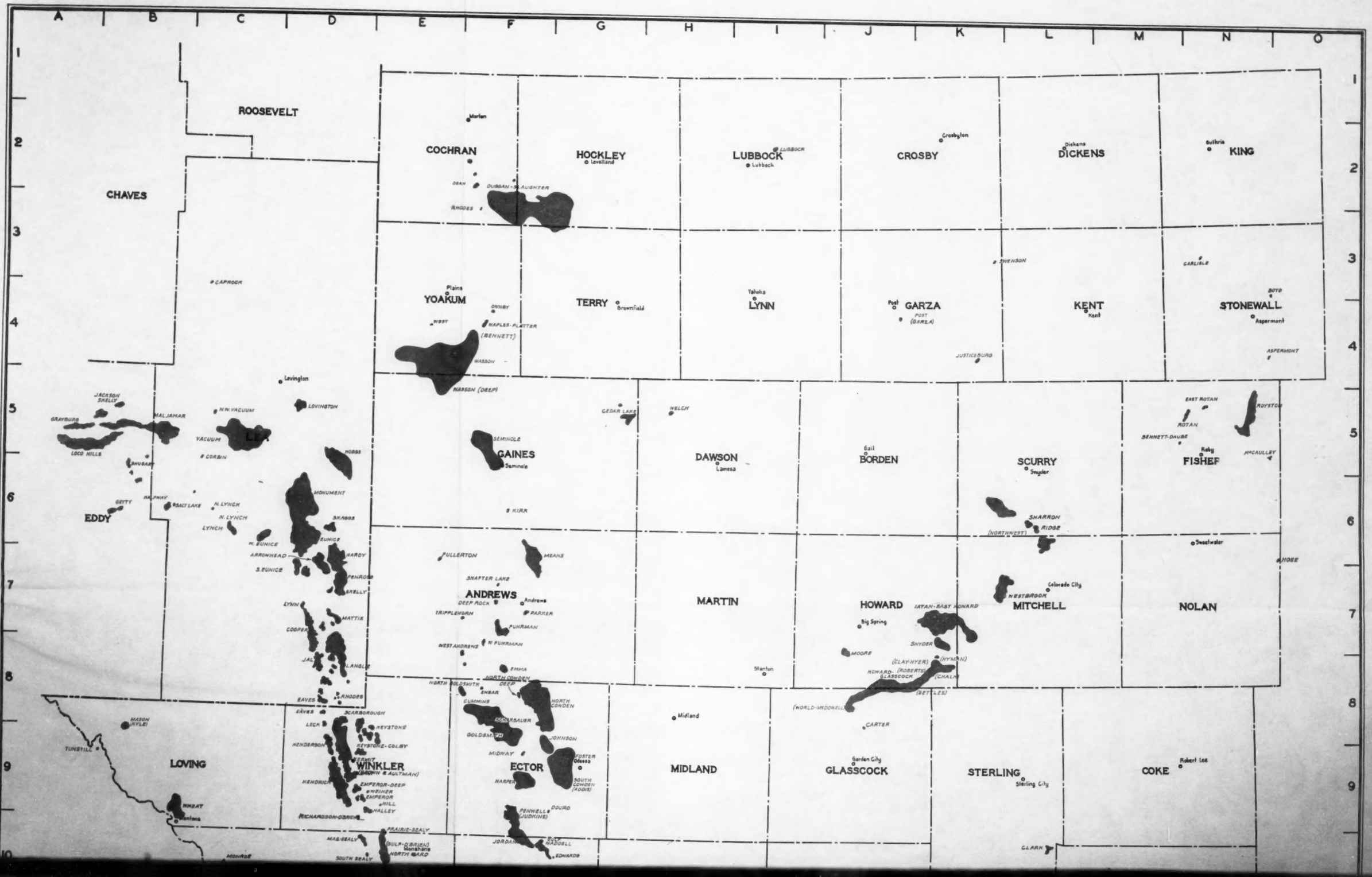

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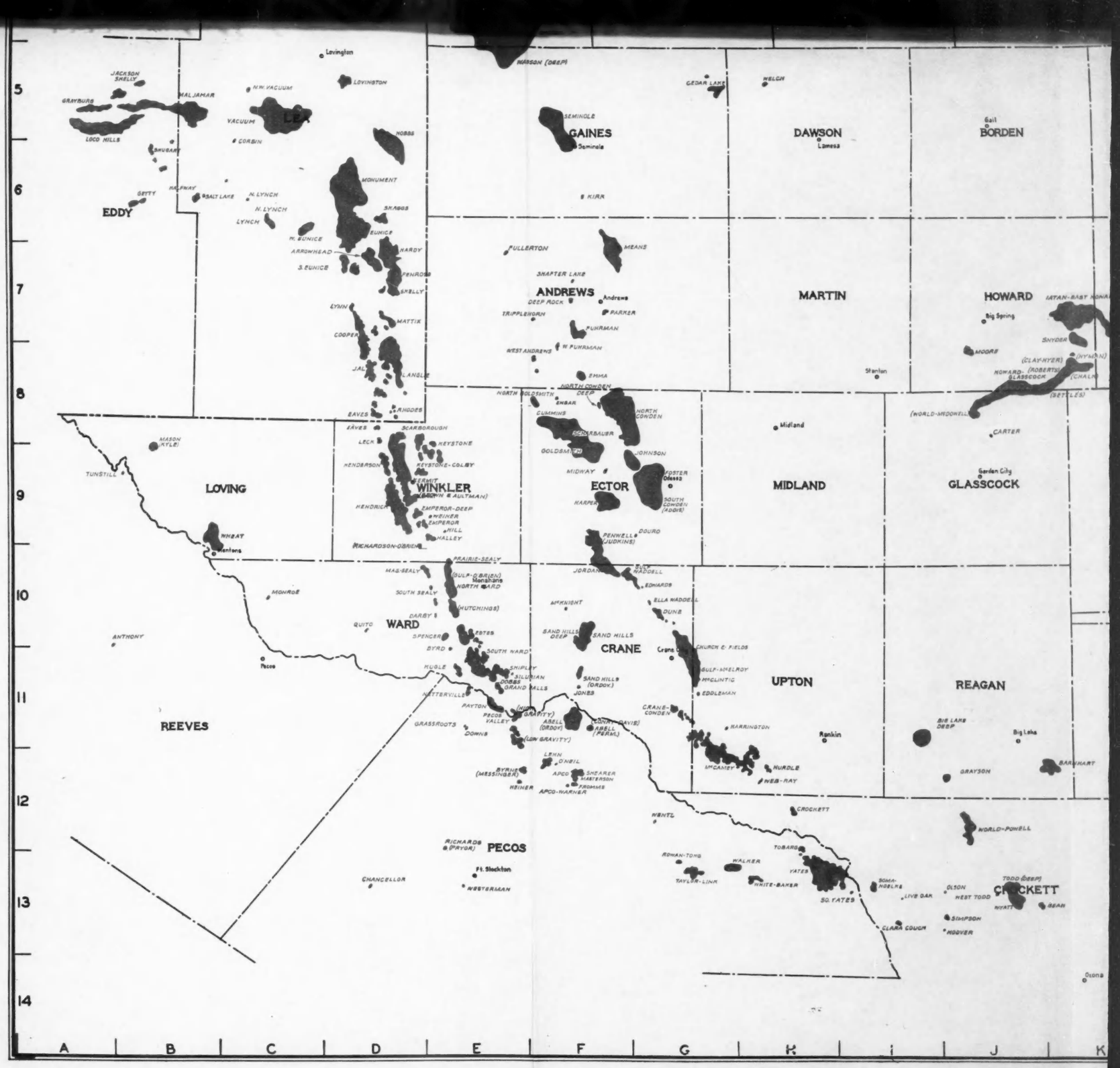

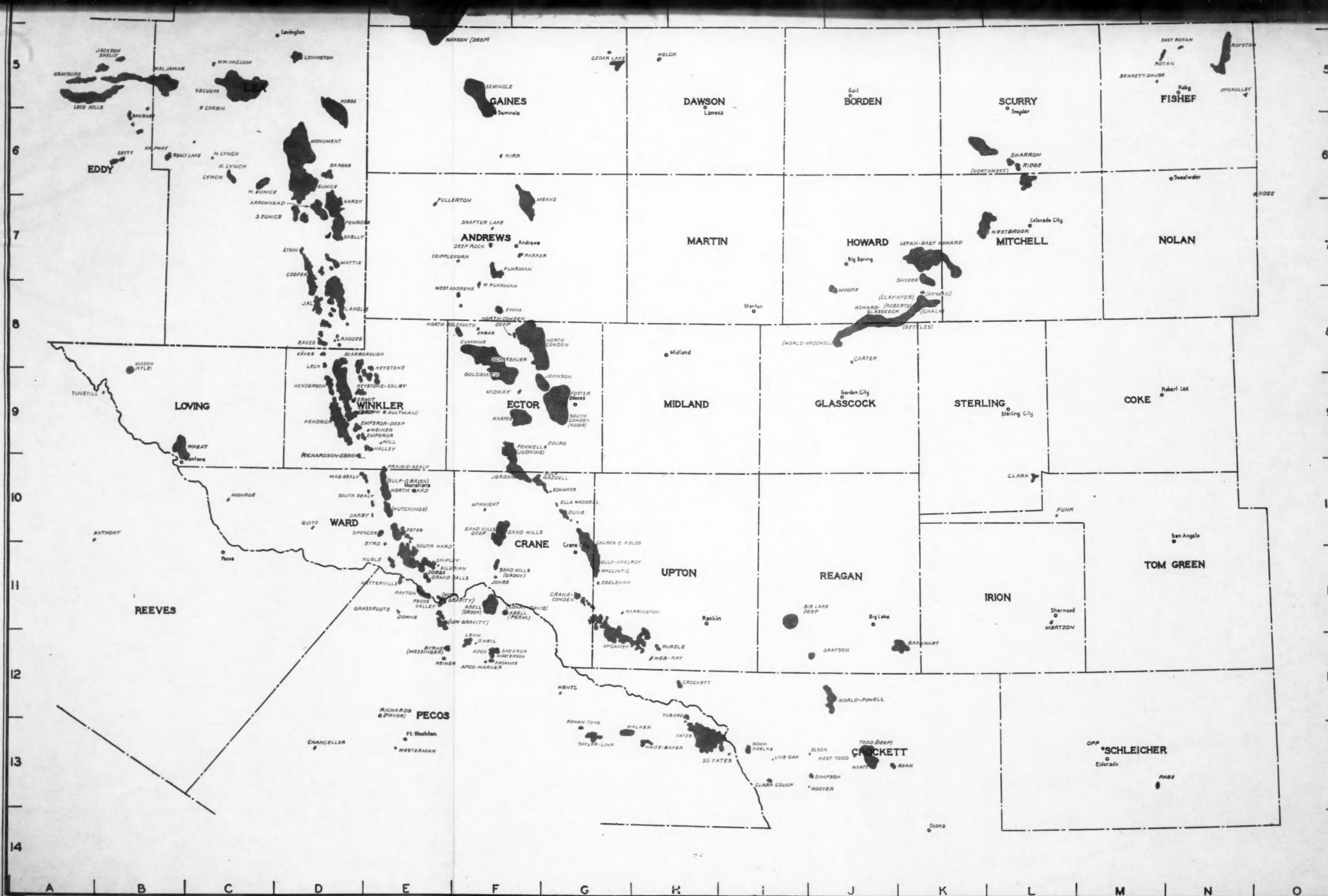
EDDY
LEA
GAINES
DAWSON
BORDEN
SCURRY
FISHEF
ANDREWS
MARTIN
HOWARD
MITCHELL
NOLAN
LOVING
WINKLER
ECTOR
MIDLAND
GLASSCOCK
STERLING
COKE
REEVES
WARD
CRANE
UPTON
REAGAN
IRION
TOM GREEN
PECOS
CROCKETT
SCHLEICHER
Lovington
Seminole
Lamesa
Gail
Snyder
Roby
Sweetwater
Colorado City
Andrews
Big Spring
Stanton
Midland
Odessa
Garden City
Sterling City
Robert Lee
San Angelo
Mentone
Monahans
Pecos
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Rankin
Big Lake
Sherwood
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Eldorado
JACKSON SHELLY
GRAYBURG
LOCO HILLS
MALJAMAR
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GETTY
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LYNN
COOPER
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JAL
LANGLIE
EAVES
RHODES
SCARBOROUGH
LECK
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HENDERSON
KEYSTONE-COLBY
KERMIT
(BROWN & AULTMAN)
HENDRICK
EMPEROR-DEEP
WEINER
EMPEROR
HILL
HALLEY
RICHARDSON-O'BRIEN
MASON (KYLE)
TUNSTILL
WHEAT
WASSON (DEEP)
CEDAR LAKE
WELCH
SEMINOLE
KIRK
FULLERTON
MEANS
SHAFTER LAKE
DEEP ROCK
PARKER
TRIPPLEHORN
FUHRMAN
WEST ANDREWS
W FUHRMAN
EMMA
NORTH COWDEN DEEP
NORTH GOLDSMITH
EMBAR
CUMMINS
NORTH COWDEN
SCHARBAUER
GOLDSMITH
JOHNSON
MIDWAY
FOSTER
HARPER
SOUTH COWDEN (ADDIS)
PENWELL (JUDKINS)
DOURO
JORDAN
GULF WADDELL
EDWARDS
ELLA WADDELL
DUNE
EAST ROTAN
ROTAN
BENNETT-DAUBE
ROYSTON
McCAULLEY
SHARRON RIDGE
(NORTHWEST)
NOSE
WESTBROOK
IATAN-EAST HOWARD
SNYDER
MOORE
(CLAY-HYER)
(HYMAN)
HOWARD-GLASSCOCK
(ROBERTS)
(CHALK)
(SETTLES)
(WORLD-McDOWELL)
CARTER
CLARK
FUNK
PRAIRIE-SEALY
MAG-SEALY
(GULF-O'BRIEN)
NORTH WARD
SOUTH SEALY
(HUTCHINGS)
DARBY
QUITO
SPENCER
ESTES
BYRD
SOUTH WARD
KUGLE
SHIPLEY
SILURIAN
DOBBS
GRAND FALLS
HATTERVILLE
PAYTON
PECOS VALLEY
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MONROE
ANTHONY
McKNIGHT
SAND HILLS DEEP
SAND HILLS
SAND HILLS (ORDOV.)
JONES
ABELL (ORDOV.)
(CONNELL-DAVIS)
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LEHN
O'NEIL
BYRNE (MESSINGER)
APCO
SHEARER
MASTERSON
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CHURCH & FIELDS
GULF-McELROY
McCLINTIC
EDDLEMAN
CRANE-COWDEN
HARRINGTON
McCAMEY
HURDLE
WEB-RAY
BIG LAKE DEEP
GRAYSON
BARNHART
MERTZON
CROCKETT
WORLD-POWELL
WENTZ
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ROWAN-TONG
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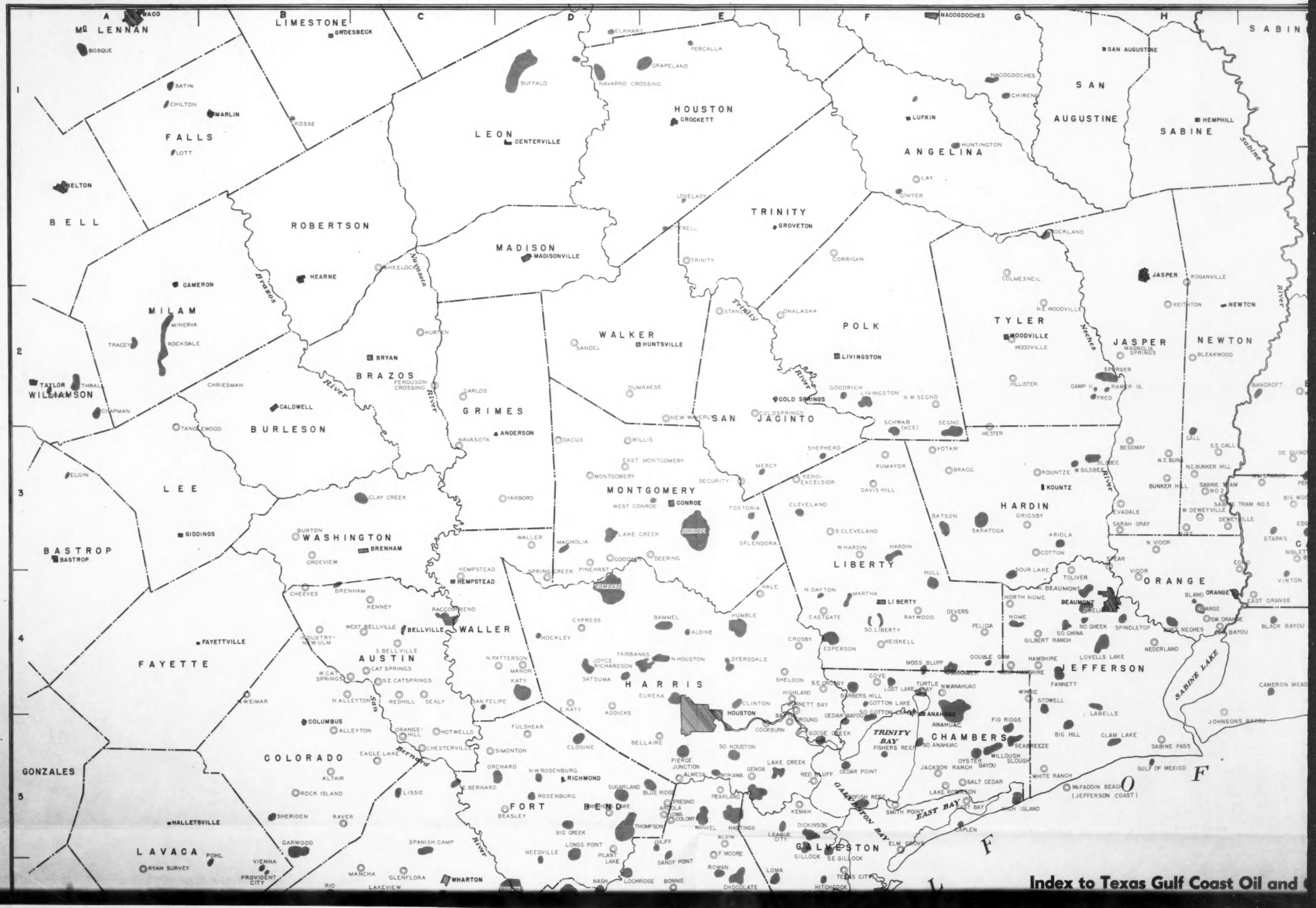
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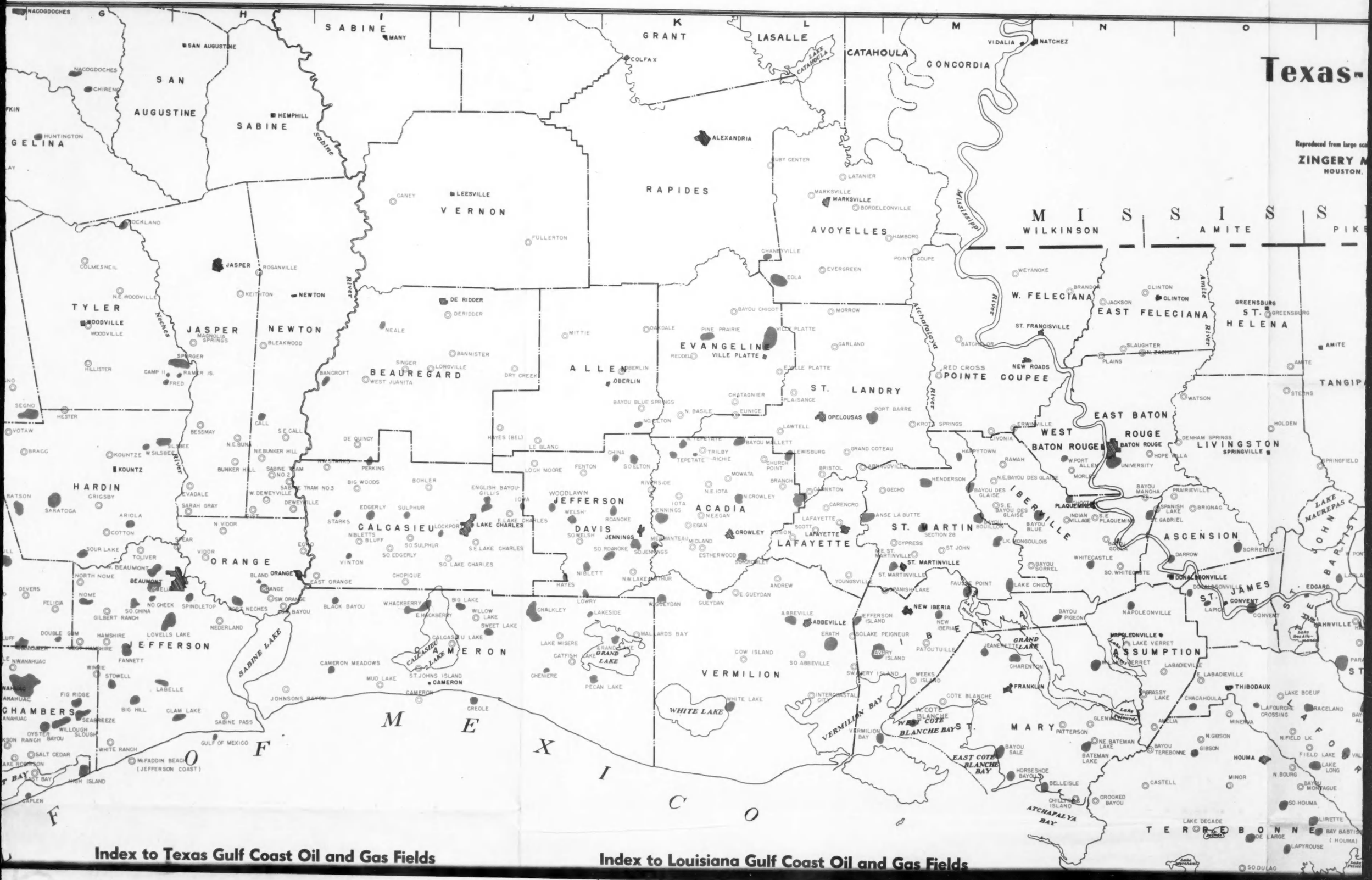

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Texas-Louisiana Gulf Coast Region

Oil and Gas Fields and Prospects

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Published as supplement to the Gulf Coast Issue of

THE OIL WEEKLY
March 16, 1942

LEGEND

- KNOWN PROSPECT
- PRODUCING FIELD

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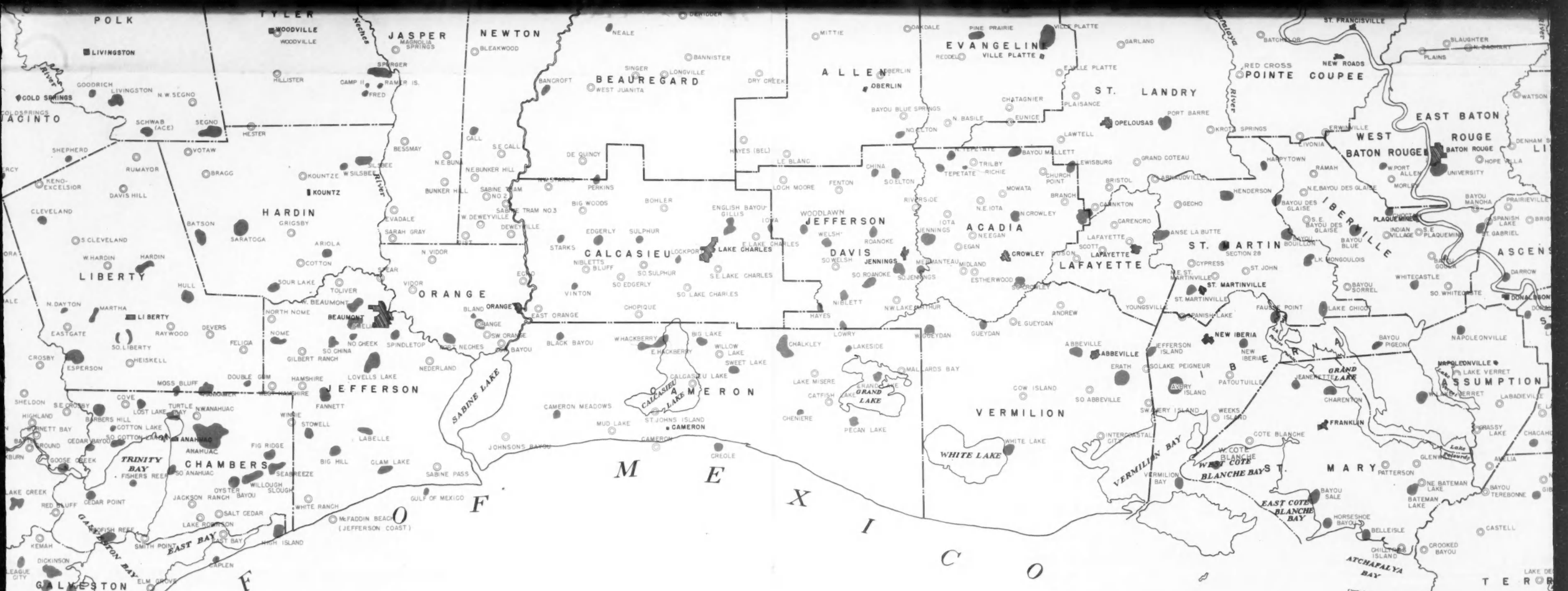

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		Four Isle	7-O	**K**		North Crowley	4-K	South Houma	6-O	West Lake Verret	5-N
C				Kenilworth	5-Q	North Elton	4-K	South Jennings	4-K	West Mermentau	5-K
Caillou Island	7-P	**G**				Northeast Tepetate	4-K	South Roanoke	4-J	Westwego	5-P
Cameron Meadows	5-H	Gardon Island Bay	7-R	**L**				Starks	4-H	White Castle	5-N
Cankton	4-L	Gibson	6-N	La Fitte	6-P	**P**		Stella	5-P	White Lake, East	5-J
Chacahoula	6-N	Gillis	4-I	La Fourche Crossing	6-O	Paradis	5-O	Sulphur	4-I	Woodlawn	4-J
Chalkley	5-J					Pine Prairie	3-K	Sweet Lake	5-I	Total	120

E F G H I J K L M N

Louisiana Gulf Coast Oil and Gas Fields

5-M	Golden Meadows	6-P	Lake Barre	7-O	Plumb Bob	5-L	T		
2-L	Grand Bay	7-R	Lake Chicot	5-L	Port Allen	4-N	Tepetate	4-K	
4-J	Grand Lake	5-K	Lake Hermitage	6-Q	Port Barre	3-L	Timbalier Bay	7-P	
4-N	Gueydan	5-K	Lake Long	6-O	Potash	6-Q			
5-I			Lake Mongoulois	4-M			U		
	H		Lake Pelto	7-O	Q		University	4-N	
	Hackberry, East	5-I	Lake Salvador	6-P	Quarantine Bay	7-R			
4-N	Hackberry, Old (or West)	5-I	Lake Side (Lowry)	5-K			V		
5-P	Happytown	4-M	Lake Washington	7-Q	R		Vacherie (Convent)	5-N	
7-O	Horse Shoe Bayou	6-M	La Pice	5-O	Raceland	6-O	Valentine	6-P	
6-Q			La Place	5-P	Ritchie	4-K	Venice	7-R	
6-P			Leeville	7-P	Roanoke	4-J	Vermilion Bay	6-L	
7-N	I		Lewisburg	4-L			Ville Platte	3-L	
	Iowa	4-J	Liretta	6, 7-O	S		Vinton	4-I	
4-I			Little Chenier	5-J	St. Gabriel	4-N			
2-L	J		Lockport	4-I	St. Martinville	5-L	W		
5-L	Jeanerette	5-M			Section 28	4-M			
	Jefferson Island	5-L	N		Sorrento	4-O	Welch	4-J	
	Jennings	4-K	Neale	3-I	South Crowley	4-K	West Bay	7-R	
			New Iberia	5-M	South Elton	4-K	West Cote Blanche Bay	6-M	
5-M	K		Niblatts	4-J	South Houma	6-O	West Gueydan	5-K	
7-O	Kenilworth	5-Q	North Crowley	4-K	South Jennings	4-K	West Lake Verret	5-N	
			North Elton	4-K	South Roanoke	4-J	West Mermentau	5-K	
	L		Northeast Tepetate	4-K	Starks	4-H	Westwego	5-P	
7-R					Stella	5-P	White Castle	5-N	
6-N	La Fitte	6-P	P		Sulphur	4-I	White Lake, East	5-J	
4-I	La Fourche Crossing	6-O	Paradis	5-O	Sweet Lake	5-I	Woodlawn	4-J	
			Pine Prairie	3-K			Total	120	

K L M N O P Q R S